(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
10 June 2004 (10.06.2004)

PCT

(10) International Publication Number
WO 2004/047872 A2

(51) International Patent Classification[7]: A61K 48/00

(21) International Application Number:
PCT/US2003/037650

(22) International Filing Date:
26 November 2003 (26.11.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/429,387 26 November 2002 (26.11.2002) US
60/444,614 3 February 2003 (03.02.2003) US

(71) Applicant: MEDTRONIC, INC. [US/US]; MS LC340, 710 Medtronic Parkway NE, Minneapolis, MN 55432 (US).

(72) Inventor: KAEMMERER, William, F.; 4900 Trillum Lane, Edina, MN 55435 (US).

(74) Agents: COLLIER, Kenneth, J. et al.; MC LC340, 710 Medtronic Parkway, Minneapolis, MN 55432 (US).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.

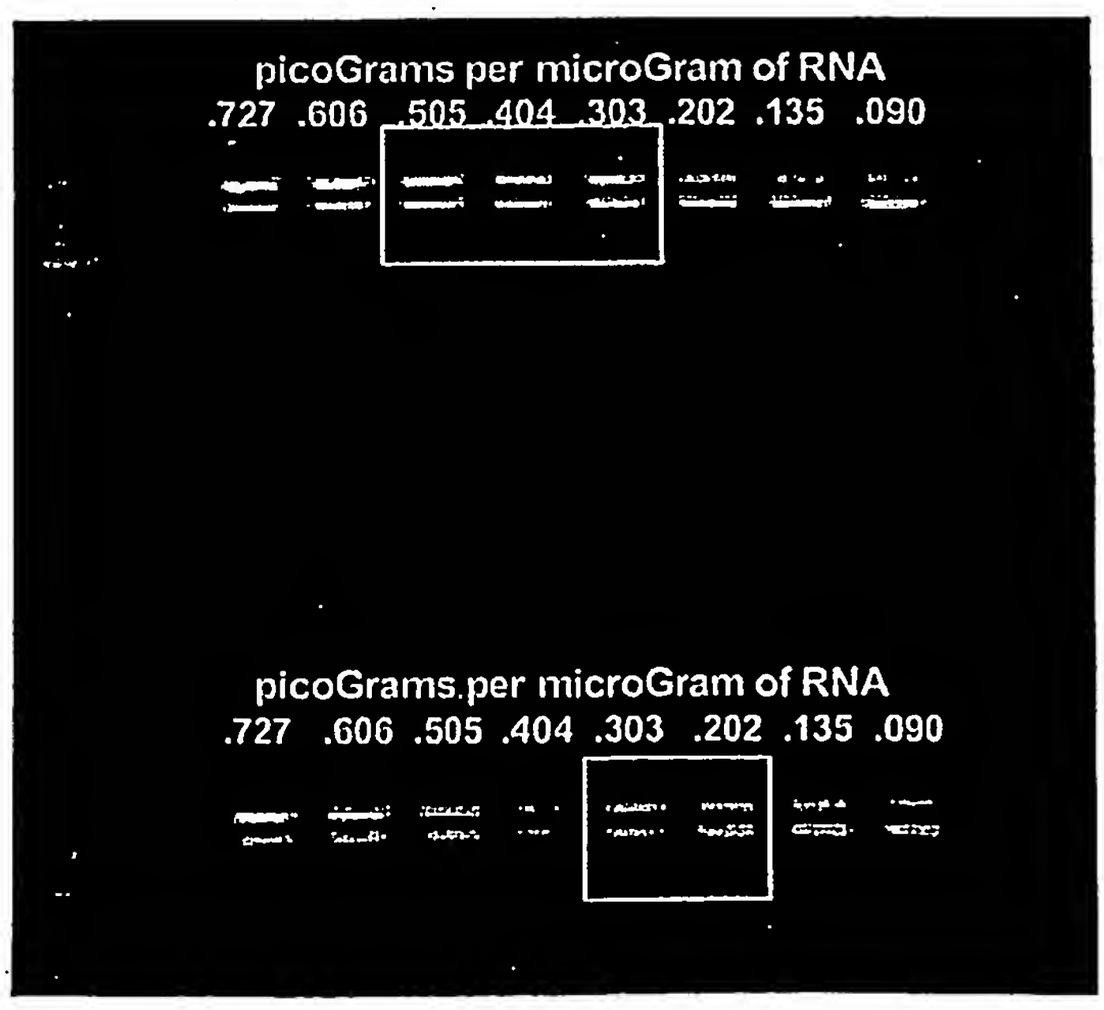
(84) Designated States *(regional)*: ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declaration under Rule 4.17:**

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN,*

*[Continued on next page]*

(54) Title: TREATMENT OF NEURODEGENERATIVE DISEASE THROUGH INTRACRANIAL DELIVERY OF SIRNA




(57) Abstract: The present invention provides devices, small interfering RNA, and methods for treating a neurodegenerative disorder comprising the steps of surgically implanting a catheter so that a discharge portion of the catheter lies adjacent to a predetermined infusion site in a brain, and discharging through the discharge portion of the catheter a predetermined dosage of at least one substance capable of inhibiting production of at least one neurodegenerative protein. The present invention also provides valuable small interfering RNA vectors, and methods for treating neurodegenerative disorders such as Alzheimer's disease, Parkinson's disease, Huntington's disease, Spinocerebellar Ataxia Type I, Type 2, Type 3, and/or dentatorubral-pallidoluysian atrophy.

WO 2004/047872 A2

BEST AVAILABLE COPY

*IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*

**Published:**

— *without international search report and to be republished upon receipt of that report*

— *with sequence listing part of description published separately in electronic form and available upon request from the International Bureau*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# TREATMENT OF NEURODEGENERATIVE DISEASE THROUGH INTRACRANIAL DELIVERY OF siRNA

## FIELD OF INVENTION

This invention relates to devices, systems, and methods for treating neurodegenerative disorders by brain infusion of small interfering RNA or vectors containing the DNA encoding for small interfering RNA.

## BACKGROUND OF THE INVENTION

This invention provides novel devices, systems, and methods for delivering small interfering RNA to targeted sites in the brain to inhibit or arrest the development and progression of neurodegenerative disorders. For several neurodegenerative diseases, such as Parkinson's disease, Alzheimer's disease, Huntington's disease, Spinocerebellar Ataxia Type 1, Type 2, and Type 3, and dentatorubral pallidoluysian atrophy (DRLPA), proteins involved in the overall pathogenic progression of the disease have been identified. There is currently no cure for these neurodegenerative diseases. These diseases are progressively debilitating and most are ultimately fatal.

Further problematic of these neurodegenerative diseases (especially Alzheimer's disease and Parkinson's disease) is that their prevalence continues to increase, thus creating a serious public health problem. Recent studies have pointed to alpha-synuclein (Parkinson's disease), beta- amyloid-cleaving enzyme 1 (BACE1 (including variants thereof, e.g. variants A, B, C, and D)) (Alzheimer's disease), huntingtin (Huntington's disease), and ataxin 1 (Spinocerebellar Ataxia Type 1) as major factors in the pathogenesis of each of these diseases, respectively.

The neurodegenerative process in Parkinson's disease and Alzheimer's disease is characterized by extensive loss of selected neuronal cell populations accompanied by synaptic injury and astrogliosis. Pathological hallmarks of Alzheimer's disease include formation of amyloid plaques, neurofibrillary tangles and neuropil thread formation; pathological hallmarks of Parkinson's diseases include the formation of intraneuronal inclusions called Lewy bodies and the loss of dopaminergic neurons in the substantia

nigra. Although the mechanisms triggering cell dysfunction and death are unclear, the prevailing view is that neurodegeneration results from toxic effects subsequent to the accumulation of specific neuronal cell proteins, such as alpha-synuclein (Parkinson's disease) and amyloid precursor protein (APP) (Alzheimer's disease – processed into beta-amyloid by BACE1 (including variants thereof, e.g. variants A, B, C, and D)).

Alpha-synuclein has been implicated in Parkinson's disease because it is abundantly found in Lewy Bodies, its overexpression in transgenic mice leads to Parkinson's disease-like pathology, and mutations within this molecule are associated with familial Parkinson's disease. Alpha-synuclein, which belongs to a larger family of molecules including β and γ-synuclein, is a 140 amino acid non-amyloid synaptic protein which is a precursor of the 35 amino acid non-amyloid component protein found in amyloid plaques.

Alzheimer's disease is a progressive degenerative disorder of the brain characterized by mental deterioration, memory loss, confusion, and disorientation. Among the cellular mechanisms contributing to this pathology are two types of fibrillar protein deposits in the brain: intracellular neurofibrillary tangles composed of polymerized tau protein, and abundant extracellular fibrils comprised largely of β-amyloid. Beta-amyloid, also known as Aβ, arises from the proteolytic processing of the amyloid precursor protein (APP) at the the β- and γ- secretase cleavage sites giving rise to the cellular toxicity and amyloid-forming capacity of the two major forms of Aβ ($A\beta_{40}$ and $A\beta_{42}$). Thus, preventing APP processing into plaque-producing forms of amyloid may critically influence the formation and progression of the disease making BACE1 (including variants thereof, e.g. variants A, B, C, and D) a clinical target for inhibiting or arresting this disease. Similar reports suggest presenilins are candidate targets for redirecting aberrant processing.

Huntington's disease is a fatal, hereditary neurodegenerative disorder characterized by involuntary "ballistic" movements, depression, and dementia. The cause has been established to be a mutation in a single gene consisting of an excessively long series of C, A, G, C, A, G, ... C, A, G, nucleotides in the DNA. The CAG repeat is in the region of the gene that codes for the protein the gene produces. Thus, the resulting huntingtin

protein is also "expanded," containing an excessively long region made of the amino acid glutamine, for which "CAG" encodes. Shortly after this mutation was pinpointed as the cause of Huntington's disease, similar CAG repeat expansions in other genes were sought and found to be the cause of numerous other fatal, hereditary neurodegenerative diseases. The list of these so-called "polyglutamine" diseases now includes at least eleven more, including: spinocerebellar ataxia type 1, type 2, and type 3, spinobulbar muscular atrophy (SBMA or Kennedy's disease) and dentatorubral-pallidoluysian atropy (DRPLA). Although the particular gene containing the expanded CAG repeat is different in each disease, it is the production of an expanded polyglutamine protein in the brain that causes each one. Symptoms typically emerge in early to middle-aged adulthood, with death ensuing 10 to 15 years later. No effective treatments for these fatal diseases currently exist.

There is considerable evidence suggesting that shutting off production of the abnormal protein in neurons will be therapeutic in polyglutamine diseases. The cause of these diseases is known to be the gain of a new function by the mutant protein, not the loss of the protein's original function. Mice harboring the human, expanded transgene for spinocerebellar ataxia type 1 (SCA1) become severely ataxic in young adulthood (Clark, H., *et al.*, *Journal of Neuroscience* 17: 7385-7395 (1997)), but mice in which the corresponding mouse gene has been knocked out do not suffer ataxia or display other major abnormalities (Matilla, A., *et al.*, *Journal of Neuroscience* 18: 5508-5516 (1998)). Transgenic mice for SCA1 in which the abnormal ataxin1 protein is produced but has been genetically engineered to be incapable of entering the cell's nucleus do not develop ataxia (Klement, I., *et al.*, *Cell* 95: 41-53 (1998)). Finally, a transgenic mouse model of Huntington's disease has been made in which the mutant human transgene has been engineered in a way that it can be artificially "turned off" by administering tetracycline (Normally, in mice and humans, administration of this antibiotic would have no effect on the disease). After these mice have begun to develop symptoms, shutting off production of the abnormal protein production by chronic administration of tetracyclin leads to an improvement in their behavior (Yamamoto, A., *et al.*, *Cell* 101: 57-66 (2000)). This suggests that reducing expression of the abnormal huntingtin protein in humans might not

only prevent Huntington's disease from progressing in newly diagnosed patients, but may improve the quality of life of patients already suffering from its symptoms.

Various groups have been recently studying the effectiveness of siRNAs. Caplen , *et al. (Human Molecular Genetics,* 11(2): 175-184 (2002)) assessed a variety of different double stranded RNAs for their ability to inhibit cell expression of mRNA transcripts of the human androgen receptor gene containing different CAG repeats. Their work found only gene –specific inhibition occurred where flanking sequences to the CAG repeats were present in the double stranded RNAs. They were also able to show that constructed double stranded RNAs were able to rescue induced caspase-3 activation. Xia, Haibin, et al. (*Nature Biotechnology,* 20: 1006-1010 (2002)) tested the inhibition of polyglutamine (CAG) expression of engineered neural PC12 clonal cell lines that express a fused polyglutamine-fluorescent protein using constructed recombinant adenovirus expressing siRNAs targeting the mRNA encoding green fluorescent protein.

The design and use of small interfering RNA complementary to mRNA targets that produce particular proteins is a recent tool employed by molecular biologist to prevent translation of specific mRNAs. Other tools used by molecular biologist interfere with translation involve cleavage of the mRNA sequences using ribozymes against therapeutic targets for Alzheimer's disease (see WO01/16312A2) and Parkinson's disease (see WO99/50300A1 and WO01/60794A2). However, none of the above aforementioned patents disclose methods for the specifically localized delivery of small interfering RNA vectors to targeted cells of the brain in a manner capable of local treatment of neurodegenerative diseases. The above patents do not disclose use of delivery devices or any method of delivery or infusion of small interfering RNA vectors to the brain. For example, the above patents do not disclose or suggest a method of delivery or infusion of small interfering RNA vectors to the brain by an intracranial delivery device.

Further, the foregoing prior art does not disclose any technique for infusing into the brain small interfering RNA vectors, nor does the prior art disclose whether small interfering RNA vectors, upon infusion into the brain, are capable of entering neurons and producing the desired small interfering RNA, which is then capable of reducing

production of at least one protein involved in the pathogenesis of neurodegenerative disorders.

The prior art describes direct systemic delivery of ribozymes. This approach for treatment of neurodegenerative disorders would appear neither possible nor desirable. First, interefering RNAs are distinctly different than ribozymes. Second, small RNA molecules delivered systemically will not persist in vivo long enough to reach the desired target, nor are they likely to cross the blood-brain barrier. Further, the approach taken by the prior art may be impractical because of the large quantity of small interfering RNA that might have to be administered by this method to achieve an effective quantity in the brain. Even when the blood-brain barrier is temporarily opened, the vast majority of oligonucleotide delivered via the bloodstream may be lost to other organ systems in the body, especially the liver.

U.S. Patent Nos. 5,735,814 and 6,042,579 disclose the use of drug infusion for the treatment of Huntington's disease, but the drugs specifically identified in these patents pertain to agents capable of altering the level of excitation of neurons, and do not specifically identify agents intended to enter the cell and alter protein production within cells.

The present invention solves prior problems existing in the prior art relating to systemic delivery of nucleic acids by directly delivering small interfering RNA in the form of DNA encoding the small interfering RNA to target cells of the brain using viral vectors. Directed delivery of the small interfering RNA vectors to the affected region of the brain infusion overcomes previous obstacles related to delivery. Further, use of viral vectors allows for efficient entry into the targeted cells and for efficient short and long term production of the small interfering RNA agents by having the cells' machinery direct the production of the small interfering RNA themselves. Finally, the present invention provides a unique targeting and selectivity profile by customizing the active small interfering RNA agents to specific sites in the mRNA coding sequences for the offending proteins.

## SUMMARY OF THE INVENTION

The present invention provides devices, systems, methods for delivering small interfering RNA for the treatment of neurodegenerative disorders.

A first objective of the described therapies is to deliver specifically tailored small interfering RNA as therapeutic agents for treatment of Parkinson's disease. Specifically tailored small interfering RNA for Parkinson's disease target the mRNA for the alpha-synuclein protein in order to reduce the amount of alpha-synuclein protein produced in neurological cells. In a related embodiment the present invention provides devices that specifically access the substantia nigra for delivery of anti-alpha-synuclein small interfering RNA.

A second objective of the described therapies is to deliver specifically tailored small interfering RNA as therapeutic agents for treatment of Alzheimer's disease. Specifically tailored small interfering RNA for Alzheimer's disease target the mRNA for BACE1 (including variants thereof, e.g. variants A, B, C, and D) in order to reduce the amount of BACE1 (including variants thereof, e.g. variants A, B, C, and D) protein produced in neurological cells and thereby interfere with the production of beta-amyloid. In a related embodiment the present invention provides devices that specifically access the nucleus basalis of Meynart and the cerebral cortex for delivery of anti-BACE1 (including variants thereof, e.g. variants A, B, C, and D) small interfering RNA.

A third objective of the described therapies is to deliver specifically tailored small interfering RNA as therapeutic agents for treatment of Huntington's disease. Specifically tailored small interfering RNA for Huntington's disease target the mRNA for huntingtin protein to reduce the amount of huntingtin protein produced in neurological cells. In a related embodiment the present invention provides devices that specifically access the caudate nucleus and putamen (collectively known as the striatum) for delivery of anti-huntingtin small interfering RNA.

A fourth objective of the described therapies is to deliver specifically tailored small interfering RNA as therapeutic agents for treatment of Spinocerebellar Ataxia Type 1 (SCA1). Specifically tailored small interfering RNA for Spinocerebellar Ataxia Type 1

target the mRNA for ataxin1 protein to reduce the amount of ataxin1 protein produced in neurological cells. In a related embodiment the present invention provides devices that specifically access the dentate nucleus, eboliform nucleus, globus nucleus, and fastigial nucleus of the cerebellum, (collectively known as the deep cerebellar nuclei), for delivery of anti-ataxin-1 small interfering RNA.

A fifth objective of the described therapies is to deliver specifically tailored small interfering RNA as therapeutic agents for treatment of Spinocerebellar Ataxia Type 3 (SCA3), also known as Machado-Joseph's Disease. Specifically tailored small interfering RNA for Spinocerebellar Ataxia Type 3 target the mRNA for ataxin3 protein to reduce the amount of ataxin3 protein produced in neurological cells. In a related embodiment the present invention provides devices that specifically access the dentate nucleus, eboliform nucleus, globus nucleus, and fastigial nucleus of the cerebellum, (collectively known as the deep cerebellar nuclei), the subthalamic region, and the substantia nigra for delivery of anti-ataxin-3-small interfering RNA.

A sixth objective of the described therapies is to deliver specifically tailored small interfering RNA as therapeutic agents for treatment of dentatorubral-pallidoluysian atrophy (DRPLA). Specifically tailored small interfering RNA for DRPLA target the mRNA for atrophin-1 protein to reduce the amount of atrophin-1 protein produced in neurological cells. In a related embodiment the present invention provides devices that specifically access the dentate nucleus, eboliform nucleus, globus nucleus, and fastigial nucleus of the cerebellum, (collectively known as the deep cerebellar nuclei), the globus pallidus, and the red nucleus for delivery of anti-DRPLA small interfering RNA.

The present invention provides a delivery system for a small interfering RNA vector therapy for neurodegenerative diseases that permits targeted delivery of small interfering RNA or vectors containing DNA encoding for small interfering RNA (small interfering RNA vectors) to targeted sites in the brain for brief durations of time or over an extended period of care for the patient.

In a main embodiment of the present invention, small interfering RNA vectors are infused into targeted sites of the brain wherein the small interfering RNA vectors are taken up by neurons and transported to the nucleus of targeted cells. The small interfering RNA

vectors are then transcribed into RNA by the host cellular machinery to produce small interfering RNA that prevent production of the targeted neurodegenerative protein.

The present invention also provides methods of using neurosurgical devices to deliver therapeutic small interfering RNA vectors to selected regions of the brain. In particular, the present invention provides methods that use surgically implanted catheters for singular, repeated, or chronic delivery of small interfering RNA vectors to the brain. The small interfering RNA vectors introduced into the affected cells have the necessary DNA sequences for transcription of the required small interfering RNA by the cells, including a promoter sequence, the small interfering RNA sequence, and optionally flanking regions allowing defined ends of the therapeutic small interfering RNA to be produced, and optionally a polyadenylation signal sequence.

## DESCRIPTION OF THE FIGURES

Figure 1 shows the assay (using a quantitative RT-PCR method known to those practiced in the art) of the ataxin1 mRNA obtained from HEK293H cells that have been transfected with plasmid containing an anti-ataxin1 ribozyme (top lanes in Figure 1) or with siRNA against ataxin1 (bottom lanes of Figure 1).

Figure 2 shows the assay (using the same quantitative RT-PCR method known to those practiced in the art) of the ataxin-1 mRNA obtained from HEK293H cells that have been transfected with anti-ataxin-1 small interfering RNA (bottom lanes) compared to the mRNA obtained from HEK293H cells that have been transfected with a control siRNA that targets the mRNA for glyceraldehyde-3-phosphate dehydrogenase (GAPDH)

Figure 3 shows the construction of the adeno-associated virus expression vector pAAV-siRNA.

Figure 4 illustrates an investigational device (by Medtronic, Inc. of Minneapolis, MN Model 8506), which can be implanted subcutaneously on the cranium, and provides an access port through which therapeutic agents may be delivered to the brain.

Figure 5 illustrates an investigational device (by Medtronic, Inc. of Minneapolis, MN - schematic of Model 8506), which can be implanted subcutaneously on the cranium, and provides an access port through which therapeutic agents may be delivered to the brain.

Figure 6 illustrates the relation of various neurodegenerative diseases described herein, and the location of treatment with small interfering RNA vectors directed to their intended targeted gene product.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention solves two problems in the prior art at the same time: (1) the problem of how to treat neurodegenerative diseases caused by the production in neurons of a protein that has pathogenic properties and (2) the problem of delivery of therapeutic small interfering RNA to affected neurons.

In order to better understand the present invention, a list of terms and the scope of understanding of those terms is provided below.

### Terminology

By "alpha-synuclein, BACE1 (including variants thereof, e.g. variants A, B, C, and D), huntingtin, ataxin-1, ataxin-3, and/or atrophin-1 proteins" is meant, a protein or a mutant protein derivative thereof, comprising the amino-acid sequence expressed and/or encoded by alpha-synuclein (Parkinson's disease), and beta-site APP-cleaving enzyme (BACE1 (including variants thereof, e.g. variants A, B, C, and D)) (Alzheimer's disease), huntingtin (Huntington's disease), and ataxin-1 (Spinocerebellar Ataxia Type 1), ataxin-3 (Spinocerebellar Ataxia Type 3 or Machado-Joseph's Disease), and/or dentatorubral-pallidoluysian atrophy (DRPLA) genes and/or the human genomic DNA respectively.

As used herein "cell" is used in its usual biological sense, and does not refer to an entire multicellular organism. The cell may be present in an organism which may be a human but is preferably of mammalian origin, e.g., such as humans, cows, sheep, apes, monkeys, swine, dogs, cats, and the like. However, several steps of producing small

interfering RNA may require use of prokaryotic cells (e.g., bacterial cell) or eukaryotic cell (e.g., mammalian cell) and thereby are also included within the term "cell".

By "complementarity" it is meant that a molecule comprised of one or more nucleic acids (DNA or RNA) can form hydrogen bond(s) with another molecule comprised of one or more nucleic acids by either traditional Watson-Crick pairing or other non- traditional types.

By "equivalent" DNA to alpha-synuclein, BACE1 (including variants thereof, e.g. variants A, B, C, and D), huntingtin, ataxin-1, ataxin-3, and/or atrophin-1 it is meant to include those naturally occurring DNA molecules having homology (partial or complete) to DNA encoding for alpha-synuclein, BACE1 (including variants thereof, e.g. variants A, B, C, and D), huntingtin, ataxin-1, ataxin-3 and/or atrophin-1 proteins or encoding for proteins with similar function as alpha-synuclein, BACE1 (including variants thereof, e.g. variants A, B, C, and D), huntingtin, ataxin-1, ataxin-3 and/or atrophin-1 in various organisms, including human, rodent, primate, rabbit, pig, and microorganisms. The equivalent DNA sequence also includes regions such as the 5'-untranslated region, the 3'-untranslated region, introns, intron-exon junctions, small interfering RNA targeted site and the like, optionally incorporated into the DNA of infective viruses, such as adeno-associated virus (AAV).

The term "functional equivalent" refers to any derivative that is functionally similar to the reference sequence or protein. In particular the term "functional equivalent" includes derivatives in which the nucleotide bases(s) have been added, deleted, or replaced without a significant adverse effect on biological function.

By "gene" it is meant a region of DNA that controls the production of RNA. In context of producing functional small interfering RNA, this definition includes the necessary DNA sequence information encompassing the DNA sequences encoding the small interfering RNA, noncoding regulatory sequence and any included introns. The present definition does not exclude the possibility that additional genes encoding proteins may function in association or in tandem with the genes encoding small interfering RNA.

The term "vector" is commonly known in the art and defines a plasmid DNA, phage DNA, viral DNA and the like, which can serve as a DNA vehicle into which DNA

of the present invention can be inserted, and from which RNA can be transcribed. The term "vectors" refers to any of these nucleic acid and/or viral-based techniques used to deliver a desired nucleic acid. Numerous types of vectors exist and are well known in the art.

The term "expression" defines the process by which a gene is transcribed into RNA (transcription); the RNA may be further processed into the mature small interfering RNA.

The terminology "expression vector" defines a vector or vehicle as described above but designed to enable the expression of an inserted sequence following transformation into a host. The cloned gene (inserted sequence) is usually placed under the control of control element sequences such as promoter sequences. The placing of a cloned gene under such control sequences is often referred to as being operably linked to control elements or sequences.

"Promoter" refers to a DNA regulatory region capable of binding directly or indirectly to RNA polymerase in a cell and initiating transcription of a downstream (3' direction) coding sequence. For purposes of the present invention, the promoter is bound at its 3' terminus by the transcription initiation site and extends upstream (5' direction) to include the minimum number of bases or elements necessary to initiate transcription at levels detectable above background. Within the promoter will be found a transcription initiation site (conveniently defined by mapping with S1 nuclease), as well as protein binding domains (consensus sequences) responsible for the binding of RNA polymerase. Eukaryotic promoters will often, but not always, contain "TATA" boxes and "CCAT" boxes. Prokaryotic promoters contain -10 and -35 consensus sequences, which serve to initiate transcription.

By "homology" it is meant that the nucleotide sequence of two or more nucleic acid molecules is partially or completely identical.

By "highly conserved sequence region" it is meant that a nucleotide sequence of one or more regions in a target gene does not vary significantly from one generation to the other or from one biological system to the other.

By the term "inhibit" or "inhibitory" it is meant that the activity of the target genes or level of mRNAs or equivalent RNAs encoding target genes is reduced below that

observed in the absence of the provided small interfering RNA. Preferably the inhibition is at least 10% less, 25% less, 50% less, or 75% less, 85% less, or 95%less than in the absence of the small interfering RNA.

By "inhibited expression" it is meant that the reduction of alpha-synuclein, BACE1 (including variants thereof, e.g. variants A, B, C, and D), huntingtin, ataxin-1, ataxin-3 and/or atrophin-1 mRNA levels and thus reduction in the level of the respective protein to relieve, to some extent, the symptoms of the disease or condition.

By "RNA" is meant ribonucleic acid, a molecule consisting of ribonucleotides connected via a phosphate-ribose(sugar) backbone. By "ribonucleotide" is meant guanine, cytosine, uracil, or adenine or some a nucleotide with a hydroxyl group at the 2' position of a β-D- ribo-furanose moiety. As is well known in the art, the genetic code uses thymidine as a base in DNA sequences and uracil in RNA. One skilled in the art knows how to replace thymidine with uracil in a nucleic acid sequence to convert a DNA sequence into RNA, or vice versa.

By "patient" is meant an organism, which is a donor or recipient of explanted cells or the cells themselves. "Patient" also refers to an organism to which the nucleic acid molecules of the invention can be administered. Preferably, a patient is a mammal or mammalian cells, e.g., such as humans, cows, sheep, apes, monkeys, swine, dogs, cats, and the like, or cells of these animals used for transplantation. More preferably, a patient is a human or human cells.

The term "synuclein" may refer to alpha-synuclein (especially human or mouse) or beta-synuclein (especially human or mouse). The full nucleotide sequence encoding human alpha-synuclein is available under Accession No AF163864 (SEQ ID:7). Two variants of the human alpha-synuclein sequence are available under Accession No NM000345 (SEQ ID:14) and Accession No NM_007308 (SEQ ID:23). The mouse alpha-synuclein is available under Accession No. AF163865 (SEQ ID:10).

The term "BACE1" may refer to beta-site amyloid precursor protein cleaving enzyme type 1 (especially human or mouse). Several variants of BACE1 have been sequenced, including variants A, B, C, and D. In some scientific literature, BACE1 is also known as ASP2 and Memapsin2. The full nucleotide sequences encoding human BACE1,

and variants related thereto, are available under Accession No. NM_138971 (SEQ ID:20), Accession No. NM_138972 (SEQ ID:19), Accession No. NM_138973 (SEQ ID:21), and Accession No. NM_012104 (SEQ ID:18). The sequence for a mouse homolog is available under accession number NM_011792 (SEQ ID:22).

The term "huntingtin" may refer to the protein product encoded by the Huntington's Disease gene (IT-15) (especially human or mouse). The full nucleotide sequence encoding human IT-15 is available under Accession No AH003045 (SEQ ID:9). The mouse sequence is available under Accession No. U24233 (SEQ ID:12).

The term "ataxin-1" may refer to the protein product encoded by the Spinocerebellar Ataxia Type 1 gene (especially human or mouse). The full nucleotide sequence encoding human SCA1 is available under Accession No NM_000332 (SEQ ID:15). The mouse sca1 is available under Accession No. NM_009124 (SEQ ID:13).

The term "ataxin-3" may refer to the protein product encoded by the Spinocerebellar Ataxia Type 3 gene (especially human or mouse). The full nucleotide sequence encoding human SCA3 is available under Accession No NM_004993 (splice variant 1) (SEQ ID:16), and NM_030660 (splice variant 2) (SEQ ID:17). (The sequence for a mouse homolog is not yet available).

The term "atrophin-1" may refer to the protein product encoded by the dentatorubral-pallidolysian atrophy (DRPLA) gene (especially human or mouse). The full nucleotide sequence encoding human DRPLA is available under Accession No XM_032588 (SEQ ID:8). The mouse sequence is available under Accession No. XM_132846 (SEQ ID:11).

The term "modification" includes derivatives substantially similar to the reference sequence or protein.

By "nucleic acid molecule" as used herein is meant a molecule having nucleotides. The nucleic acid can be single, double, or multiple stranded and may comprise modified or unmodified nucleotides or non-nucleotides or various mixtures and combinations thereof. An example of a nucleic acid molecule according to the invention is a gene which encodes for a small interfering RNA, even though it does not necessarily have its more common meaning for encoding for the production of protein.

By "small interfering RNA" is meant a nucleic acid molecule which has complementarity in a substrate binding region to a specified gene target, and which acts to specifically guide enzymes in the host cell to cleave the target RNA. That is, the small interfering RNA by virtue of the specificity of its sequence and its homology to the RNA target, is able to cause cleavage of the RNA strand and thereby inactivate a target RNA molecule because it is no longer able to be transcribed. These complementary regions allow sufficient hybridization of the small interfering RNA to the target RNA and thus permit cleavage. One hundred percent complementarity often necessary for biological activity and therefore is preferred, but complementarity as low as 90% may also be useful in this invention. The specific small interfering RNA described in the present application are not meant to be limiting and those skilled in the art will recognize that all that is important in a small interfering RNA of this invention is that it have a specific substrate binding site which is complementary to one or more of the target nucleic acid regions.

Small interfering RNAs are double stranded RNA agents that have complementary to (i.e., able to base-pair with) a portion of the target RNA (generally messenger RNA). Generally, such complementarity is 100%, but can be less if desired, such as 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%. For example, 19 bases out of 21 bases may be base-paired. In some instances, where selection between various allelic variants is desired, 100% complementary to the target gene is required in order to effectively discern the target sequence from the other allelic sequence. When selecting between allelic targets, choice of length is also an important factor because it is the other factor involved in the percent complementary and the ability to differentiate between allelic differences.

XXXX

The small interfering RNA sequence needs to be of sufficient length to bring the small interfering RNA and target RNA together through complementary base-pairing interactions. The small interfering RNA of the invention may be of varying lengths. The length of the small interfering RNA is preferably greater than or equal to ten nucleotides and of sufficient length to stably interact with the target RNA; specifically 15-30 nucleotides; more specifically any integer between 15 and 30 nucleotides, such as 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, and 30. By "sufficient length" is meant

an oligonucleotide of greater than or equal to 15 nucleotides that is of a length great enough to provide the intended function under the expected condition. By "stably interact" is meant interaction of the small interfering RNA with target nucleic acid (e.g., by forming hydrogen bonds with complementary nucleotides in the target under physiological conditions).

By "comprising" is meant including, but not limited to, whatever follows the word "comprising". Thus, use of the term "comprising" indicates that the listed elements are required or mandatory, but that other elements are optional and may or may not be present.

By "consisting of" is meant including, and limited to, whatever follows the phrase "consisting of". Thus, the phrase "consisting of" indicates that the listed elements are required or mandatory, and that no other elements may be present.

By "consisting essentially of" is meant including any elements listed after the phrase, and limited to other elements that do not interfere with or contribute to the activity or action specified in the disclosure for the listed elements. Thus, the phrase "consisting essentially of" indicates that the listed elements are required or mandatory, but that other elements are optional and may or may not be present depending upon whether or not they affect the activity or action of the listed elements.

The present invention provides the means and tools for treating polyglutamine diseases (such as Huntington's disease and spinocerebellar ataxia type 1), Parkinson's disease, and Alzheimer's disease by intracranial delivery of vectors encoding small interfering RNAs designed to silence the expression of disease-causing or disease-worsening proteins, delivered through one or more implanted intraparenchymal catheters. In particular, the invention is (1) a method to treat Huntington's disease by the intracranial delivery of a vector encoding a small interfering RNA designed to silence expression of huntingtin protein; (2) a method to treat spinocerebellar ataxia type 1 by the intracranial delivery of a vector encoding a small interfering RNA designed to silence expression of ataxin1 protein; (3) a method to treat Parkinson's disease by the intracranial delivery of a vector encoding a small interfering RNA designed to silence expression of alpha-synuclein protein, and (4) a method to treat Alzheimer's disease by the intracranial delivery of a

vector encoding a small interfering RNA designed to silence expression of beta-amyloid cleaving enzyme 1 (BACE1).

As previously indicated, the small interfering RNA (or siRNA) described herein, is a segment of double strandedRNA that is from 15 to 30 nucleotides in length. It is used to trigger a cellular reaction known as RNA interference. In RNA interference, double-stranded RNA is digested by an intracellular enzyme known as Dicer, producing siRNA duplexes. The siRNA duplexes bind to another intracellular enzyme complex which is thereby activated to target whatever mRNA molecules are homologous (or complementary) to the siRNA sequence. The activated enzyme complex cleaves the targeted mRNA, destroying it and preventing it from being used to direct the synthesis of its corresponding protein product. By means that are not yet fully understood, the RNA interference process appears to be self-amplifying. Recent evidence suggests that RNA interference is an ancient, innate mechanism for not only defense against viral infection (many viruses introduce foreign RNA into cells) but also gene regulation at very fundamental levels. RNA interference has been found to occur in plants, insects, lower animals, and mammals, and has been found to be dramatically more effective than other gene silencing technologies, such as antisense or ribozymes. Used as a biotechnology, siRNA involves introducing into cells (or causing cells to produce) short, double-stranded molecules of RNA similar to those that would be produced by the Dicer enzyme from an invading double-stranded RNA virus. The artificially-triggered RNA interference process then continues from that point.

To deliver a small interfering RNA to a patient's brain, the preferred method will be to introduce the DNA encoding for the siRNA, rather than the siRNA molecules themselves, into the cells of the brain. The DNA sequence encoding for the particular therapeutic siRNA can be specified upon knowing (a) the sequence for a small and accessible portion of the target mRNA (available in public human genome databases), and (b) well-known scientific rules for how to specify DNA that will result in production of a corresponding RNA sequence when the DNA is transcribed by cells. The DNA sequence, once specified, can be constructed in the laboratory from synthetic molecules ordered from

a laboratory supplier, and inserted using standard molecular biology methods into one of several alternative "vectors" for delivery of DNA to cells. Once delivered into the neurons of the patient's brain, those neurons will themselves produce the RNA that becomes the therapeutic siRNA, by transcribing the inserted DNA into RNA. The result will be that the cells themselves produce the siRNA that will silence the targeted gene. The result will be a reduction of the amount of the targeted protein produced by the cell.

**Small interfering RNA and Small interfering RNA Vectors**

In accordance with the present invention, small interfering RNA against specific mRNAs produced in the affected cells prevent the production of the disease related proteins in neurons. In accordance with the present invention is the use of specifically tailored vectors designed to deliver small interfering RNA to targeted cells. The success of the designed small interfering RNA is predicated on their successful delivery to the targeted cells of the brain to treat the neurodegenerative diseases.

Small interfering RNA have been shown to be capable of targeting specific mRNA molecules in human cells. Small interfering RNA vectors can be constructed to transfect human cells and produce small interfering RNA that cause the cleavage of the target RNA and thereby interrupt production of the encoded protein.

A small interfering RNA vector of the present invention will prevent production of the pathogenic protein by suppressing production of the neuropathogenic protein itself or by suppressing production of a protein involved in the production or processing of the neuropathogenic protein. Repeated administration of the therapeutic agent to the patient may be required to accomplish the change in a large enough number of neurons to improve the patient's quality of life. Within an individual neuron, however, the change is longstanding enough to provide a therapeutic benefit. The desperate situation of many patients suffering from neurodegenerative disorders, such as Alzheimer's disease, Parkinson's disease, Huntington's disease, or Spinocerebellar Ataxia Type 1 provides a strong likelihood that the benefit from the therapy will outweigh the risks of the therapy delivery and administration. While it may be possible to accomplish some reduction in the production of neuropathogenic proteins with other therapeutic agents and routes of

administration, development of successful therapies involving direct in vivo transfection of neurons may provide the best approach based on delivery of small interfering RNA vectors to targeted cells.

The preferred vector for delivery of foreign DNA to neurons in the brain is adeno-associated virus (AAV), such as recombinant adeno-associated virus serotype 2 or recombinant adeno-associated virus serotype 5. Alternatively, other viral vectors, such as herpes simplex virus, may be used for delivery of foreign DNA to central nervous system neurons. It is also possible that non-viral vectors, such as plasmid DNA delivered alone or complexed with liposomal compounds or polyethyleneamine, may be used to deliver foreign DNA to neurons in the brain.

It is important to note that the anti-ataxin-1 small interfering RNA illustrated here, as well as the other small interfering RNAs for treating neurodegenerative disorders, are just but some examples of the embodiment of the invention. Experimentation using neurosurgical methods with animals, known to those practiced in neuroscience, can be used to identify the candidate small interfering RNAs. The target cleavage site and small interfering RNA identified by these empirical methods will be the one that will lead to the greatest therapeutic effect when administered to patients with the subject neurodegenerative disease.

In reference to the nucleic molecules of the present invention, the small interfering RNA are targeted to complementary sequences in the mRNA sequence coding for the production of the target protein, either within the actual protein coding sequence, or in the 5' untranslated region or the 3' untranslated region. After hybridization, the host enzymes are capable of cleavage of the mRNA sequence. Perfect or a very high degree of complementarity is needed for the small interfering RNA to be effective. A percent complementarity indicates the percentage of contiguous residues in a nucleic acid molecule that can form hydrogen bonds (e.g., Watson-Crick base pairing) with a second nucleic acid sequence (e.g., 5, 6, 7, 8, 9, 10 out of 10 being 50%, 60%, 70%, 80%, 90%, and 100% complementary). "Perfectly complementary" means that all the contiguous residues of a nucleic acid sequence will hydrogen bond with the same number of contiguous residues in a second nucleic acid sequence. However, it should be noted that

single mismatches, or base-substitutions, within the siRNA sequence can substantially reduce the gene silencing activity of a small interfering RNA.

The small interfering RNA that target the specified sites in alpha-synuclein, BACE1 (including variants thereof, e.g. variants A, B, C, and D), huntingtin, ataxin-1, ataxin-3 and/or atrophin-1 RNAs represent a novel therapeutic approach to treat Parkinson's disease, Alzheimer's disease, Huntington's disease, Spinocerebellar 1, Spinocerebellar Ataxia Type 3, and/or dentatorubral-pallidoluysian atrophy in a cell or tissue.

In preferred embodiments of the present invention, a small interfering RNA is 15 to 30 nucleotides in length. In particular embodiments, the nucleic acid molecule is 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, or 30 nucleotides in length. In preferred embodiments the length of the siRNA sequence can be between 19-30 base pairs, and more preferably between 21 and 25 base pairs, and more preferably between 21 and 23 basepairs.

In a preferred embodiment, the invention provides a method for producing a class of nucleic acid-based gene inhibiting agents that exhibit a high degree of specificity for the RNA of a desired target. For example, the small interfering RNA is preferably targeted to a highly conserved sequence region of target RNAs encoding alpha-synuclein, BACE1 (including variants thereof, e.g. variants A, B, C, and D), huntingtin, ataxin-1, ataxin-3 and/or atrophin-1 RNA such that specific treatment of a disease or condition can be provided with either one or several nucleic acid molecules of the invention. Further, generally, interfering RNA sequences are selected by identifying regions in the target sequence that begin with a pair of adenine bases (AA)(see Examples). SiRNAs can be constructed in vitro or in vivo using appropriate transcription enzymes or expression vectors.

SiRNAs can be constructed in vitro using DNA oligonucleotides. These oligonucletides can be constructed to include an 8 base sequence complementary to the 5' end of the T7 promoter primer included in the Silencer siRNA (Ambion Construction Kit 1620). Each gene specific oligonucleotide is annealed to a supplied T7 promoter primer, and a fill-in reaction with Klenow fragment generates a full-length DNA template for

transcription into RNA. Two in vitro transcribed RNAs (one the antisense to the other) are generated by in vitro transcription reactions then hybridized to each other to make double-stranded RNA. The double-stranded RNA product is treated with DNase (to remove the DNA transcription templates) and RNase (to polish the ends of the double-stranded RNA), and column purified to provide the siRNA that can be delivered and tested in cells.

Construction of siRNA vectors that express siRNAs within mammalian cells typically use an RNA polymerase III promoter to drive expression of a short hairpin RNA that mimics the structure of an siRNA. The insert that encodes this hairpin is designed to have two inverted repeats separated by a short spacer sequence. One inverted repeat is complementary to the mRNA to which the siRNA is targeted. A string of thymidines added to the 3' end serves as a pol III transcription termination site. Once inside the cell, the vector constitutively expresses the hairpin RNA. The hairpin RNA is processed into an siRNA which induces silencing of the expression of the target gene, which is called RNA interference (RNAi)..

In most siRNA expression vectors described to date, one of three different RNA polymerase III (pol III) promoters is used to drive the expression of a small hairpin siRNA (1-5). These promoters include the well-characterized human and mouse U6 promoters and the human H1 promoter. RNA pol III was chosen to drive siRNA expression because it expresses relatively large amounts of small RNAs in mammalian cells and it terminates transcription upon incorporating a string of 3–6 uridines.

The constructed nucleic acid molecules can be delivered exogenously to specific tissue or cellular targets as required. Alternatively, the nucleic acid molecules (e.g., small interfering RNA) can be expressed from DNA plasmid , DNA viral vectors, and/or RNA retroviral vectors that are delivered to specific cells.

The delivered small nuclear RNA sequences delivered to the targeted cells or tissues are nucleic acid-based inhibitors of alpha-synuclein, BACE1 (including variants thereof, e.g. variants A, B, C, and D), huntingtin, ataxin-1, ataxin-3 and/or atrophin-1 expression (e.g. translational inhibitors) are useful for the prevention of the

neurodegenerative diseases including Parkinson's disease, Alzheimer's disease, Huntington's disease, Spinocerebellar Ataxia Type 1, Spinocerebellar Ataxia Type 3, and DRPLA and any other condition related to the level of alpha-synuclein, BACE1 (including variants thereof, e.g. variants A, B, C, and D), huntingtin, ataxin-1, ataxin-3 and/or atrophin-1 in a cell or tissue, and any other diseases or conditions that are related to the levels of alpha-synuclein, beta-amyloid, huntingtin, ataxin-1, ataxin-3 or atrophin-1 in a cell or tissue.

The nucleic acid-based inhibitors of the invention are added directly, or can be complexed with cationic lipids, packaged within liposomes, packaged within viral vectors, or otherwise delivered to target cells or tissues. The nucleic acid or nucleic acid complexes can be locally administered to relevant tissues ex vivo, or in vivo through injection, infusion pump or stent, with or without their incorporation in biopolymers. In preferred embodiments, the nucleic acid inhibitors comprise sequences which are a sufficient length and/or stably interact with their complementary substrate sequences identified in SEQ ID NOS: 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, or 23. Examples of such small interfering RNA also are shown in SEQ IDS NOS: 1, 2, 3, 4, for SEQ IDS relating to Ataxin1.

In another aspect, the invention provides mammalian cells containing one or more nucleic acid molecules and/or expression vectors of this invention. The one or more nucleic acid molecules may independently be targeted to the same or different sites.

In another aspect of the invention, small interfering RNA molecules that interact with target RNA molecules and inhibit alpha-synuclein, BACE1 (including variants thereof, e.g. variants A, B, C, and D), huntingtin, ataxin-1, ataxin-3 and/or atrophin-1 RNA activity are expressed from transcription units inserted into DNA or RNA vectors. The recombinant vectors are preferably DNA plasmids or viral vectors. Small interfering RNA expressed from viral vectors could be constructed based on, but not limited to, the vector sequences of adeno-associated virus, retrovirus, or adenovirus. Preferably, the recombinant vectors capable of expressing the small interfering RNA are delivered as described above, and persist in target cells. Alternatively, viral vectors may be used that provide for transient expression of small interfering RNA. Such vectors might be

repeatedly administered as necessary. Once expressed, the small interfering RNA bind to the target RNA and through use of the host machinery inhibit its expression and thereby its function. Delivery of small interfering RNA expressing vectors, or the small interfering RNA themselves, is by use of intracranial access devices.

The nucleic acid molecules of the instant invention, individually, or in combination or in conjunction with other drugs, can be used to treat diseases or conditions discussed above. For example, to treat a disease or condition associated with alpha-synuclein (Parkinson's Disease), and beta-site APP-cleaving enzyme (Alzheimer's Disease), huntingtin (Huntington's Disease), and Ataxin 1 (Spinocerebellar Ataxia) , the patient may be treated, or other appropriate cells may be treated, as is evident to those skilled in the art, individually or in combination with one or more drugs under conditions suitable for the treatment.

In a further embodiment, the described small interfering RNA can be used in combination with other known treatments to treat conditions or diseases discussed above.

In another preferred embodiment, the invention provides nucleic acid- based inhibitors (e.g., small interfering RNA) and methods for their use to downregulate or inhibit the expression of RNA (e.g., alpha-synuclein, BACE1 (including variants thereof, e.g. variants A, B, C, and D), huntingtin, ataxin-1, ataxin-3 and/or atrophin-1) coding for proteins involved in the progression and/or maintenance of Parkinson's disease, Alzheimer's disease, Huntington's disease, Spinocerebellar Ataxia Type 1, Spinocerebellar Ataxia Type 3, and dentatorubral-pallidoluysian atrophy.

The present invention also provides nucleic acid molecules that can be expressed within cells from known eukaryotic promoters (e.g., Izant and Weintraub, 1985, Science, 229, 345; McGarry and Lindquist, 1986, Proc. Natl. Acad. Sci., USA 83, 399; Scanlon et al., 1991, Proc. Natl. Acad. Sci. USA, 88, 10591-5; Kashani- Sabet et al., 1992, Antisense Res. Dev., 2, 3-15; Dropulic et al., 1992, J Virol., 66, 1432- 41; Weerasinghe et al., 1991, J Virol., 65, 5531-4; Ojwang et al., 1992, Proc. Natl. Acad. Sci. USA, 89, 10802-6; Chen et al., 1992, Nucleic Acids Res., 20, 4581-9; Sarver et al., 1990 Science, 247, 1222-1225; Thompson et al., 1995, Nucleic Acids Res., 23, 2259; Good et al., 1997, Gene Therapy, 4, 45; all of these references are hereby incorporated herein, in their totalities, by reference).

Those skilled in the art realize that any nucleic acid can be expressed in eukaryotic cells from the appropriate DNA/RNA vector. The activity of such nucleic acids can be augmented by their release from the primary transcript by ribozymes (Draper et al., PCT WO 93/23569, and Sullivan et al., PCT WO 94/02595; Ohkawa et al., 1992, Nucleic Acids Symp. Ser., 27, 15-6; Taira et al., 1991, Nucleic Acids Res., 19, 5125- 30; Ventura et al., 1993, Nucleic Acids Res., 21, 3249-55; Chowrira et al. , 1994, J Biol. Chem., 269, 25856; all of these references are hereby incorporated in their totality by reference herein).

In another aspect of the invention, RNA molecules of the present invention are preferably expressed from transcription units (see, for example, Couture et al., 1996, TIG., 12, 5 10) inserted into DNA or RNA vectors. The recombinant vectors are preferably DNA plasmids or viral vectors. Small interfering RNA expressing viral vectors could be constructed based on, but not limited to, adeno-associated virus, retrovirus, adenovirus, or alphavirus.

Preferably, the recombinant vectors capable of expressing the nucleic acid molecules are delivered as described above, and persist in target cells. Alternatively, viral vectors may be used that provide for transient expression of nucleic acid molecules. Such vectors might be repeatedly administered as necessary. Once expressed, the nucleic acid molecule binds to the target mRNA. Delivery of nucleic acid molecule expressing vectors could be by singular, multiple, or chronic delivery by use of the described intracranial access devices.

In one aspect, the invention features an expression vector comprising a nucleic acid sequence encoding at least one functional segment of the nucleic acid molecules of the instant invention. The nucleic acid sequence encoding the nucleic acid molecule of the instant invention is operably linked in a manner which allows expression of that nucleic acid molecule.

In another aspect the invention features an expression vector comprising: a) a transcription initiation region (e.g., eukaryotic pol I, II or III initiation region); b) a nucleic acid sequence encoding at least one of the nucleic acid agents of the instant invention; and c) a transcription termination region (e.g., eukaryotic pol I, II or III termination region);

wherein said sequence is operably linked to said initiation region and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule.

Transcription of the nucleic acid molecule sequences are driven from a promoter for eukaryotic RNA polymerase I (pol 1), RNA polymerase II (pol II), or RNA polymerase III (pol III) as is known and appreciated in the art. All of these references are incorporated by reference herein. Several investigators have demonstrated that RNA molecules can be expressed from such promoters can function in mammalian cells (e.g. Kashani-Sabet et al., 1992, Antisense Res. Dev., 2, 3-15; Ojwang et al., 1992, Proc. NatL Acad Sci. USA, 89, 10802-6; Chen et al., 1992, Nucleic Acids Res., 20, 4581-9; Yu et al., 1993, Proc. Natl. Acad Sci. U S A, 90, 6340-4; L'Huillier et al., 1992, EMBO J, 11, 4411-8; Lisziewicz et al., 1993, Proc. Natl. Acad. Sci. U. S. A, 90, 8000-4; Thompson et al., 1995, Nucleic Acids Res., 23, 2259; Sullenger & Cech, 1993, Science, 262, 1566). More specifically, transcription units such as the ones derived from genes encoding U6 small nuclear (snRNA), transfer RNA (tRNA) and adenovirus VA RNA are useful in generating high concentrations of desired RNA molecules such as small interfering RNA in cells (Thompson et al., supra; Couture and Stinchcomb, 1996, supra; Noonberg et al., 1994, Nucleic Acid Res., 22, 2830; Noonberg et al., US Patent No. 5,624,803; Good et al., 1997, Gene Ther., 4, 45; Beigelman et al., International PCT Publication No. WO 96118736; all of these publications are incorporated by reference herein). The above small interfering RNA transcription units can be incorporated into a variety of vectors for introduction into mammalian cells, including but not restricted to, plasmid DNA vectors, viral DNA vectors (such as adenovirus or adeno-associated virus vectors), or viral RNA vectors (such as retroviral or alphavirus vectors) (for a review see Couture and Stinchcomb, 1996, supra).

It is also important to note that the targeting of ataxin1 mRNA for reduction using a small interfering RNA-based therapy for the disease Spinocerebellar Ataxia Type 1 is but one embodiment of the invention. Other embodiments include the use of an anti-huntingtin small interfering RNA administered to the striatum of the human brain, for the treatment of Huntington's disease, and the use of an anti-alpha-synuclein small interfering RNA administered to the substantia nigra of the human brain, for the treatment of Parkinson's disease.

It should be noted that the exemplified methods for constructing the small interfering RNA to be used as the therapeutic agents in the invention (that is, in vitro transcription from DNA templates and assembly into double-stranded RNA, or cloning the DNA coding for a hairpin structure of RNA into an adeno-associated viral expression vector) are only two possible means for making the therapeutic small interfering RNA. Other larger scale, more efficient methods for manufacturing small interfering RNA may be used to produce the clinical grade and clinical quantities used for treating human patients, without altering the essence of the invention.

Those of skill in the art are familiar with the principles and procedures discussed in widely known and available sources as Remington's Pharmaceutical Science (17th Ed., Mack Publishing Co., Easton, PA, 1985) and Goodman and Gilman's The Pharmaceutical Basis of Therapeutics (8th Ed., Pergamon Press, Elmsford, NY, 1990) both of which are incorporated herein by reference.

In a preferred embodiment of the present invention, the composition comprising the siRNA agent or precursors or or derivatives thereof is formulated in accordance with standard procedure as a pharmaceutical composition adapted for delivered administration to human beings and other mammals. Typically, compositions for intravenous administration are solutions in sterile isotonic aqueous buffer.

Where necessary, the composition may also include a solubilizing agent and a local anesthetic to ameliorate any pain at the site of the injection. Generally, the ingredients are supplied either separately or mixed together in unit dosage form, for example, as a dry lyophilized powder or water free concentrate in a hermetically sealed container such as an ampule or sachette indicating the quantity of active agent. Where the composition is to be administered by infusion, it can be dispensed with an infusion bottle containing sterile pharmaceutical grade water or saline. Where the composition is administered by injection, an ampule of sterile water for injection or saline can be provided so that the ingredients may be mixed prior to administration.

In cases other than intravenous administration, the composition can contain minor amounts of wetting or emulsifying agents, or pH buffering agents. The composition can be a liquid solution, suspension, emulsion, gel, polymer, or sustained release formulation.

The composition can be formulated with traditional binders and carriers, as would be known in the art. Formulations can include standard carriers such as pharmaceutical grades of mannitol, lactose, starch, magnesium stearate, sodium saccharide, cellulose, magnesium carbonate, etc., inert carriers having well established functionality in the manufacture of pharmaceuticals. Various delivery systems are known and can be used to administer a therapeutic of the present invention including encapsulation in liposomes, microparticles, microcapsules and the like.

In yet another preferred embodiment, therapeutics containing small interfering RNA or precursors or derivatives thereof can be formulated as neutral or salt forms. Pharmaceutically acceptable salts include those formed with free amino groups such as those derived from hydrochloric, phosphoric, acetic, oxalic, tartaric acids and the like, and those formed with free carboxyl groups such as those derived from sodium, potassium, ammonium, calcium, ferric hydroxides, isopropylamine, thriethylamine, 2-ethylamino ethanol, histidine, procaine or similar.

The amount of the therapeutic of the present invention which will be effective in the treatment of a particular disorder or condition will depend on the nature of the disorder or condition, and can be determined by standard clinical techniques, well established in the administration of therapeutics. The precise dose to be employed in the formulation will also depend on the route of administration, and the seriousness of the disease or disorder, and should be decided according to the judgment of the practitioner and the patient's needs. Suitable dose ranges for intracranial administration are generally about $10^3$ to $10^{15}$ infectious units of viral vector per microliter delivered in 1 to 3000 microliters of single injection volume. Addition amounts of infections units of vector per micro liter would generally contain about $10^4$, $10^5$, $10^6$, $10^7$, $10^8$, $10^9$, $10^{10}$, $10^{11}$, $10^{12}$, $10^{13}$, $10^{14}$ infectious units of viral vector delivered in about 10, 50, 100, 200, 500, 1000, or 2000 microliters. Effective doses may be extrapolated from dose-responsive curves derived from in vitro or in vivo test systems.

For the small interfering RNA vector therapy for neurodegenerative disease of the present invention, multiple catheters having access ports can be implanted in a given patient for a complete therapy. In a preferred embodiment, there is one port and catheter

system per cerebral or cerebellar hemisphere, and perhaps several. Once the implantations are performed by a neurosurgeon, the patient's neurologist can perform a course of therapy consisting of repeated bolus injections of small interfering RNA expression vectors over a period of weeks to months, along with monitoring for therapeutic effect over time. The devices can remain implanted for several months or years for a full course of therapy. After confirmation of therapeutic efficacy, the access ports might optionally be explanted, and the catheters can be sealed and abandoned, or explanted as well. The device material should not interfere with magnetic resonance imaging, and, of course, the small interfering RNA preparations must be compatible with the access port and catheter materials and any surface coatings.

Unless defined otherwise, the scientific and technological terms and nomenclature used herein have the same meaning as commonly understood by a person of ordinary skill to which this invention pertains. Generally, the procedures for cell cultures, infection, molecular biology methods and the like are common methods used in the art. Such standard techniques can be found in reference manuals such as for example Sambrook et al. (1989, Molecular Cloning - A Laboratory Manual, Cold Spring Harbor. Laboratories) and Ausubel et al. (1994, Current Protocols in Molecular Biology, Wiley, New York).

The polymerase chain reaction (PCR) used in the construction of siRNA expression plasmids and/or viral vectors is carried out in accordance with known techniques. See, e.g., U.S. Pat. Nos. 4,683,195; 4,683,202; 4,800,159; and 4,965,188 (the disclosures of all three U.S. Patent are incorporated herein by reference). In general, PCR involves a treatment of a nucleic acid sample (e.g., in the presence of a heat stable DNA polymerase) under hybridizing conditions, with one oligonucleotide primer for each strand of the specific sequence to be detected. An extension product of each primer which is synthesized is complementary to each of the two nucleic acid strands, with the primers sufficiently complementary to each strand of the specific sequence to hybridize therewith. The extension product synthesized from each primer can also serve as a template for further synthesis of extension products using the same primers. Following a sufficient number of rounds of synthesis of extension products, the sample is analyzed to assess whether the sequence or sequences to be detected are present. Detection of the amplified

sequence may be carried out by visualization following EtBr staining of the DNA following gel electrophores, or using a detectable label in accordance with known techniques, and the like. For a review on PCR techniques (see PCR Protocols, A Guide to Methods and Amplifications, Michael et al. Eds, Acad. Press, 1990).

**Devices**

Using the small interfering RNA vectors previously described, the present invention also provides devices, systems, and methods for delivery of small interfering RNA to target locations of the brain. The envisioned route of delivery is through the use of implanted, indwelling, intraparenchymal catheters that provide a means for injecting small volumes of fluid containing AAV or other vectors directly into local brain tissue. The proximal end of these catheters may be connected to an implanted, intracerebral access port surgically affixed to the patient's cranium, or to an implanted drug pump located in the patient's torso.

Examples of the delivery devices within the scope of the present invention include the Model 8506 investigational device (by Medtronic, Inc. of Minneapolis, MN), which can be implanted subcutaneously on the cranium, and provides an access port through which therapeutic agents may be delivered to the brain. Delivery occurs through a stereotactically implanted polyurethane catheter. The Model 8506 is schematically depicted in Figures 4 and 5. Two models of catheters that can function with the Model 8506 access port include the Model 8770 ventricular catheter by Medtronic, Inc., for delivery to the intracerebral ventricles, which is disclosed in U.S. Patent No. 6,093,180, incorporated herein by reference, and the IPA1 catheter by Medtronic, Inc., for delivery to the brain tissue itself (*i.e.*, intraparenchymal delivery), disclosed in U.S. Serial Nos. 09/540,444 and 09/625,751, which are incorporated herein by reference. The latter catheter has multiple outlets on its distal end to deliver the therapeutic agent to multiple sites along the catheter path. In addition to the aforementioned device, the delivery of the small interfering RNA vectors in accordance with the present invention can be accomplished with a wide variety of devices, including but not limited to U.S. Patent Nos. 5,735,814, 5,814,014, and 6,042,579, all of which are incorporated herein by reference. Using the teachings of the present invention and those of skill in the art will recognize that

these and other devices and systems may be suitable for delivery of small interfering RNA vectors for the treatment of neurodegenerative diseases in accordance with the present invention.

In one preferred embodiment, the method further comprises the steps of implanting a pump outside the brain, the pump coupled to a proximal end of the catheter, and operating the pump to deliver the predetermined dosage of the at least one small interfering RNA or small interfering RNA vector through the discharge portion of the catheter. A further embodiment comprises the further step of periodically refreshing a supply of the at least one small interfering RNA or small interfering RNA vector to the pump outside said brain.

Thus, the present invention includes the delivery of small interfering RNA vectors using an implantable pump and catheter, like that taught in U.S. Patent No. 5,735,814 and 6,042,579, and further using a sensor as part of the infusion system to regulate the amount of small interfering RNA vectors delivered to the brain, like that taught in U.S. Patent No. 5,814,014. Other devices and systems can be used in accordance with the method of the present invention, for example, the devices and systems disclosed in U.S. Serial Nos. 09/872,698 (filed June 1, 2001) and 09/864,646 (filed May 23, 2001), which are incorporated herein by reference.

To summarize, the present invention provides methods to deliver small interfering RNA vectors to the human central nervous system, and thus treat neurodegenerative diseases by reducing the production of a pathogenic protein within neurons.

The present invention is directed for use as a treatment for neurodegenerative disorders and/or diseases, comprising Alzheimer's disease, Parkinson's disease, Huntington's disease, Spinocerebellar type l, type 2, and type 3, and/or any neurodegenerative disease caused or aggravated by the production of a pathogenic protein, or any other neurogenerative disease caused by the gain of a new, pathogenic function by a mutant protein.

**Examples**

Example 1: Construction of a small interfering RNA targeting human ataxin1 mRNA.

As an example of the embodiments of the invention, we have made a small interfering RNA that targets the mRNA for human ataxin1. This small interfering RNA reduces the amount of mRNA for human ataxin1 in human cells, in cell cultures. As a therapy for Spinocerebellar Ataxia Type 1 (SCA1), this same small interfering RNA or a similar small interfering RNA will be delivered to the cells of the cerebellum in the patient's brain, using implanted access ports and catheters. The result will be a reduction in the amount of ataxin1 protein in these cells, thereby slowing or arresting the progression of the patient's SCA1 disease.

The small interfering RNA against human ataxin1 was been constructed from the nucleotide sequence for human ataxin1. The sequence from human ataxin 1 was retrieved from the publicly-accessible nucleotide database provided by NCBI, retrievable as NCBI accession number NM_000332 (SEQ ID:15). A portion of the human mRNA sequence for ataxin1 was identified as a potential site for small interfering RNA cleavage and also predicted to be single-stranded by MFOLD analysis. In accession NM_000332 (SEQ ID:15), three pairs of anti ataxin1 siRNA targets were constructed:

1. Anti-ataxin1 siRNA targeting the mRNA sequence at sites numbered 945 through 965:

SEQ ID:1 5' - AACCAAGAGCGGAGCAACGAA - 3'

SEQ ID:2 3' - GGTTCTCGCCTCGTTGCTTAA - 5'

2. Anti-ataxin1 siRNA targeting the mRNA sequence at sites numbered 1671 - through 1691:

SEQ ID:3 5' - AACCAAGAGCGGAGCAACGAA - 3'

SEQ ID:4 3' - GGTTCTCGCCTCGTTGCTTAA - 5'

3. Anti-ataxin1 siRNA targeting the mRNA sequence at sites numbered 2750 - through 2770:

SEQ ID:4 5' - AACCAGTACGTCCACATTTCC - 3'

SEQ ID:6 3' - GGTCATGCAGGTGTAAAGGAA - 5'

A series of six deoxyoligonucleotide fragments were designed, ordered and purchased from the MWG Biotech, Inc., custom oligonucleotide synthesis service to provide the six fragments making up the three target sites. Additionally, these oligonucletides were constructed to include an 8 base sequence complementary to the 5' end of the T7 promoter primer included in an siRNA construction kit (Ambion, Inc. catalog number 1620). Each specific oligonucleotide was annealed to the supplied T7 promoter primer, and filled-in with Klenow fragment to generate a full-length DNA template for transcription into RNA. Two in vitro transcribed RNAs (one athe antisense to the other) were generated by in vitro transcription reactions then hybridized to each other to make double-stranded RNA. The double-stranded RNA product was treated with DNase (to remove the DNA transcription templates) and RNase (to polish the ends of the double-stranded RNA), and column purified to provide the three siRNAs that were delivered and tested in cells.

Example 2: Delivery of a small interfering RNA targeting human ataxin1 mRNA.

The constructed siRNA molecules 1-3 described in Example 1 were transfected into HEK293 cells. The RNA produced by the transfected cells was harvested and assayed to measure the amount of human ataxin1 mRNA.

Figure 1 shows the results of a quantitative reverse-transcriptase polymerase chain reaction (qRT-PCR) assay for the amount of ataxin1 messenger RNA (mRNA) per microgram of total RNA from cultures of HEK 293H cells. Four cell populations were

assayed. The first were 293H cells that had been transiently transfected with siRNA against GAPDH, a "housekeeping gene" with no known relationship to ataxin1 mRNA expression. (The siRNA against GAPDH was supplied as a standard control by Ambion, Inc., in their commercially-available kit for making and testing siRNA). The second were 293H cells that had been transiently transfected with siRNA against ataxin1 mRNA at location 1671 in the ataxin1 mRNA sequence. The third were 293H cells transiently transfected with a plasmid containing a ribozyme against ataxin1 mRNA (which cleaves ataxin1 mRNA at position 1364 in the ataxin1 mRNA sequence). The fourth were 293H cells transiently transfected with siRNA against ataxin1 mRNA at location 0945. All cell populations were harvested concurrently for total cellular RNA, at a time point 48 hours after transfection.

On the gels pictured, the amplified DNA products of the RT-PCR reaction were separated by molecular size, using gel electrophoresis, and are visible as bands of varying intensity. Each cell population described was assayed using a series of parallel reactions, shown as a set of lanes at the top or bottom of each gel. Each set of lanes contains two bands per lane. The top band is the DNA product amplified from a known quantity of DNA added to the reaction to compete with the endogenous cDNA reverse transcribed from the cellular mRNA. If the bands in a given lane are of the same intensity, then the amount of cellular mRNA in the original cell sample can be inferred to be equivalent to the amount of known quantity of DNA added to the reaction tube. From left to right across the lanes, the amount of known DNA standard added was decreased, in the picogram amounts shown. The assay is interpreted by looking for the set of lanes for which the intensity of the bands "crosses over" from being brightest for the DNA standard, to being brightest for the cellular product below it, indicating that the amount of DNA standard is now lower than the amount of cellular mRNA.

On the gel shown in Figure 1, the top set of lanes is from the cells transfected with the ribozyme against ataxin1 mRNA. The comparison of the bands from this cellular sample to the bands from the DNA standards indicates that the amount of ataxin1 mRNA in these cells is between .505 and .303 picograms per microgram of total cellular RNA. The bottom set of lanes is from the cells transfected with siRNA against ataxin1 at

position 0945. Analysis of these lanes indicates that the amount of ataxin1 mRNA in these cells is between .303 and .202 picograms per microgram of total cellular RNA.

On the gelshown in Figure 2, the top set of lanes is from the cells transfected with a control siRNA against GAPDH. Analysis of these lanes indicates that the amount of ataxin1 mRNA in these cells is between .711 and .400 picograms per microgram of total cellular RNA. Finally, the bottom set of lanes is from cells transfected with another siRNA against ataxin1, at position 1671. These lanes indicate that the amount of ataxin1 mRNA in these cells is between 0.404 and 0.303 picograms per microgram of total cellular RNA.

In summary, the results of this particular analysis were:

| Treatment | Amount of ataxin1 mRNA (picograms per microgram total cellular RNA) | | |
|---|---|---|---|
| | Lower bound | Upper bound | Midpoint Estimate |
| Control (GAPDH) | 0.400 | 0.711 | 0.555 |
| Ribozyme (A1364A) | 0.303 | 0.505 | 0.404 |
| siRNA (AT1671) | 0.303 | 0.404 | 0.353 |
| siRNA (AT0945) | 0.202 | 0.303 | 0.252 |

These data indicate that both the AT1671 and AT0945 siRNA against ataxin1 were effective at reducing the amount of ataxin1 mRNA in these cells within 48 hours after transfection, and that the siRNA were more effective at the reduction of ataxin1 mRNA than was this anti-ataxin1 ribozyme.

It should be noted that the exemplified method for constructing the small interfering RNA to be used as the therapeutic agents in the invention (that is, assembly from oligonucleotides using in vitro transcription and hybridization) is only one possible means for making the therapeutic small interfering RNA. Other larger scale, more efficient methods for manufacturing small interfering RNA may be used to produce the clinical grade and clinical quantities used for treating human patients, without altering the essence of the invention or departing from the spirit and scope of this invention, as set

forth in the appended claims.

Example 3: Allele-Specific Reduction of Ataxin1 Expression Using Small, Interfering RNA

In heterozygous patients, if a single nucleotide polymorphism (SNP) were to differ between the mutant and normal length allele, an appropriate siRNA might selectively reduce expression of only the mutant allele. We have tested 293, DAOY, SK-N-SH, and HeLa cells using allele-specific RT-PCR for a SNP at position +927 downstream from the SCA1 start codon (see Accession NT_007592). HeLa cells express a 927C but no 927T allele, while 293 cells express a 927T but no 927C allele. DAOY and SK-N-SH cells express both allelic variants. We have created allele-specific siRNA centered at this site. Results of assays for allele-specific suppression of endogenous SCA1 mRNA by these siRNA variants will be presented.

Example 4: Construction of Small, Interfering RNA Viral Vectors

A selectable reporter plasmid, pAAV-U6-Tracer is constructed for cloning siRNA. (See Figure 3). The plasmid pAAV-U6-Tracer is constructed to contain the inverted terminal repeats (ITR) of adeno-associated virus, flanking the U6 RNA polymerase III promoter from pSilencer (Ambion), and the EF1a promoter, green fluorescence protein, Zeocin$^r$ resistance, and SV40 poly A from pTracer (Invitrogen). The gene segments are cloned as shown in Figure 3. Oligonucleotides for expressing siRNA are cloned into the multiple cloning region just downstream in the 3' direction from the U6 RNA polymerase III promoter.

HEK293 Cells are cotransfected with pAAV-siRNA, pHelper, and pAAV-RC to make viral producer cells, where the pAAV-RC and pHelper plasmids are part of the three plasmid AAV production system Avigen, Inc.) . The producer 293 cells are grown in culture are used to isolate recombinant viruses, which is used to transfect secondary cells: HeLa Cells, DAOY cells, and SK-N-SH cells.

WE CLAIM:

1. A medical system for treating a neurodegenerative disorder comprising:
   a. an intracranial access device;
   b. a mapping means for locating a predetermined location in the brain;
   c. a deliverable amount of a small interfering RNA or vector encoding said small interfering RNA; and
   d. a delivery means for delivering said small interfering RNA or vector encoding said small interfering RNA to said location of the brain from said intracranial access device.

2. A medical system of claim 1 wherein said neurodegenerative disorder is Parkinson's disease.
3. A medical system of claim 1 wherein said neurodegenerative disorder is Alzheimer's disease.
4. A medical system of claim 1 wherein said neurodegenerative disorder is Huntington's disease.
5. A medical system of claim 1 wherein said neurodegenerative disorder is spinocerebellar ataxia type 1.
6. A medical system of claim 1 wherein said neurodegenerative disorder is spinocerebellar ataxia type 2.
7. A medical system of claim 1 wherein said neurodegenerative disorder is spinocerebellar ataxia type 3, also known as Machado-Joseph disease.
8. A medical system of claim 1 wherein said neurodegenerative disorder is dentatorubral-pallidoluysian atrophy, also known as DRPLA.
9. A medical system of claim 1 wherein said intracranial access device is an intracranial catheter.
10. A medical system of claim 1 wherein said intracranial access device is an intracranial access port.

11. A medical system of claim 1 wherein said predetermined location is the substantia nigra.
12. A medical system of claim 1 wherein said predetermined location is the nucleus basalis of Meynert or the cerebral cortex.
13. A medical system of claim 1 wherein said predetermined location is the caudate nucleus, the putamen, or the striatum.
14. A medical system of claim 1 wherein said predetermined location is the dentate nucleus, emboliform nucleus, the globose nucleus, the fastigial nucleus of the cerebellum (collectively the deep cerebellar nuclei), or the cerebellar cortex.
15. A medical system of claim 1 wherein said predetermined location is the subthalamic nucleus.
16. A medical system of claim 1 wherein said small interfering RNA is complementary to the mRNA for alpha-synuclein.
17. A medical system of claim 1 wherein said small interfering RNA is complementary to the mRNA for beta amyloid cleaving enzyme type 1, or BACE1.
18. A medical system of claim 1 wherein said small interfering RNA is complementary to the mRNA transcript from the IT15 gene, including the code for the huntingtin protein.
19. A medical system of claim 1 wherein said small interfering RNA is complementary to the mRNA transcript from the SCA1 gene, including the code for the ataxin1 protein.
20. A medical system of claim 1 wherein said small interfering RNA is complementary to the mRNA transcript from the SCA2 gene, including the code for the ataxin2 protein.
21. A medical system of claim 1 wherein said small interfering RNA is complementary to the mRNA transcript from the SCA3 gene, including the code for the ataxin3 protein, also known as the Machado-Joseph protein.
22. A medical system of claim 1 wherein said small interfering RNA is complementary to the mRNA transcript from the DRLPA gene, including the code for the atrophin1 protein.
23. A medical system of claim 1 wherein said small interfering RNA is substantially provided for in any one of **SEQ ID Nos: 1-44.**

24. A medical system of claim 1 wherein said delivery means is injection from an external syringe into an intracranial access port.
25. A medical system of claim 1 wherein said delivery means is an infusion pump.
26. An infusion pump of claim 25 wherein the said infusion pump is an electromechanical pump.
27. An infusion pump of claim 25 wherein the said infusion pump is an osmotic pump.
28. A method for treating a neurodegenerative disorder comprised of modulating the expression or production of a protein in neurons by intracranial delivery of a small interfering RNA that reduces said expression of production of said protein, in a pharmaceutically acceptable carrier.
29. A method of delivering a small interfering RNA to a location in the brain comprising the steps of:
    a. surgically implanting an intracranial access delivery device; and
    b. infusing a small interfering RNA and/or a vector encoding said small interfering RNA at a predetermined site in the brain.
30. A method of delivering a small interfering RNA to a location in the brain comprising the steps of:
    a. surgically implanting an intracranial access delivery device; and
    b. infusing a small interfering RNA and/or a vector encoding said small interfering RNA at a predetermined site in the brain; wherein at least one attribute of said neurodegenerative diseases is reduced or its progression slowed or arrested.
31. The method of claim 30, wherein said step of implanting the catheter is performed after said neurodegenerative disorder is diagnosed.
32. The method of claim 31, wherein said step of implanting the catheter is performed after said neurodegenerative disorder is diagnosed and before the symptoms of the said neurodegenerative disorder are manifest.
33. The method of claim 31, wherein said step of implanting the catheter is performed after said neurodegenerative disorder is diagnosed and after the symptoms of the said neurodegenerative disorder are manifest.

34. The method of any one of claims 29, 30, or 31, wherein said intracranial access delivery device is an intracranial access port coupled to the proximal end of an intracranial catheter.

35. The method of any one of claims 29, 30, or 31, further comprising the steps of: implanting a pump outside the brain, the pump coupled to the proximal end of an intracranial catheter.

36. The method of claim 35 comprising operating the pump to deliver a predetermined dosage of the said small interfering RNA or vector encoding said small interfering RNA from the pump through the discharge portion of the said intracranial catheter.

37. The method of claim 35 further comprising the step of periodically refreshing the pump with at least one substance.

38. The method of claim 35 wherein said pump is an infusion pump.

39. The method of claim 38 wherein said infusion pump is an electromechanical pump.

40. The method of claim 38 wherein said infusion pump is an osmotic pump.

41. A method of claims 28 or 30, wherein said neurodegenerative disorder is Parkinson's disease.

42. A method of claims 28 or 30 wherein said neurodegenerative disorder is Alzheimer's disease.

43. A method of claims 28 or 30, wherein said neurodegenerative disorder is Huntington's disease.

44. A method of claims 28, or 30 wherein said neurodegenerative disorder is spinocerebellar ataxia type 1.

45. A method of claims 28 or 30, wherein said neurodegenerative disorder is spinocerebellar ataxia type 2.

46. A method of claims 28 or 30, wherein said neurodegenerative disorder is spinocerebellar ataxia type 3, also known as Machado-Joseph disease.

47. A method of claims 28 or 30, wherein said neurodegenerative disorder is dentatorubral-pallidoluysian atrophy, also known as DRPLA.

48. A method of claims 29 or 30, wherein the said predetermined site in the brain is the substantia nigra.

49. A method of claims 29 or 30, wherein the said predetermined site in the brain is the nucleus basalis of Meynert or the cerebral cortex.

50. A method of claims 29 or 30, wherein the said predetermined site in the brain is the caudate nucleus, the putamen, or the striatum.

51. A method of claims 29 or 30, wherein the said predetermined site in the brain is the dentate nucleus, emboliform nucleus, the globose nucleus, the fastigial nucleus of the cerebellum (collectively the deep cerebellar nuclei), or the cerebellar cortex.

52. A method of claims 29 or 30, wherein the said predetermined site in the brain is the subthalamic nucleus.

53. A method of claims 28, 29, or 30, wherein said small interfering RNA is complementary to the mRNA for alpha-synuclein.

54. A method of claims 28, 29, or 30 wherein said small interfering RNA is complementary to the mRNA for beta amyloid cleaving enzyme type 1, or BACE1.

55. A method of claims 28, 29 or 30 wherein said small interfering RNA is complementary to the mRNA transcript from the IT15 gene, including the code for the huntingtin protein.

56. A method of claims 28, 29, or 30 wherein said small interfering RNA is complementary to the mRNA transcript from the SCA1 gene, including the code for the ataxin1 protein.

57. A method of claims 28, 29, or 30 wherein said small interfering RNA is complementary to the mRNA transcript from the SCA2 gene, including the code for the ataxin2 protein.

58. A method of claims 28, 29, or 30 wherein said small interfering RNA is complementary to the mRNA transcript from the SCA3 gene, including the code for the ataxin3 protein, also known as the Machado-Joseph protein.

59. A method of claims 28, 29 or 30 wherein said small interfering RNA is complementary to the mRNA transcript from the DRLPA gene, including the code for the atrophin1 protein.

60. A method of claims 28, 29, or 30 wherein said small interfering RNA is delivered by a delivery vector.

61. A method of claim 60 wherein the delivery vector is adeno-associated virus, or AAV.
62. A method of claim 60 wherein the delivery vector is adenovirus.
63. A method of claim 60 wherein the delivery vector is herpes simplex virus, or HSV.
64. A method of claim 60 wherein the delivery vector is lentivirus.
65. A method of claim 60 wherein the delivery vector is a DNA plasmid.
66. A method of claim 65 wherein the said DNA plasmid is complexed with a liposomal compound.
67. A method of claim 65 wherein the said DNA plasmid is complexed with polyethylenimine (PEI).
68. A small interfering RNA containing sequences according to **SEQ ID Nos 1-4-**, or a partial sequence thereof, or a base sequence hybridizable to a complementary strand of RNA encoding a protein associated with a neurodegenerative disease.
69. A small interfering RNA comprising an RNA sequence hybridizable to the RNA sequence encoding a protein associated with a neurodegenerative disease to cause cleavage of said protein-encoding RNA sequence.
70. A small interfering RNA expression sequence comprising the DNA sequence encoding an RNA sequence hybridizable to the RNA sequence encoding a protein associated with a neurodegenerative disease to cause cleavage of said protein-encoding RNA sequence.
71. A small interfering RNA of any of claims 68, 69, or 70 wherein said neurodegenerative disease is Parkinson's disease.
72. A small interfering RNA of any of claims 68, 69, or 70 wherein said neurodegenerative disease is Alzheimer's disease.
73. A small interfering RNA of any of claims 68, 69, or 70 wherein said neurodegenerative disease is Huntington's disease.
74. A small interfering RNA of any of claims 68, 69, or 70 wherein said neurodegenerative disease is spinocerebellar ataxia type 1.
75. A small interfering RNA of any of claims 68, 69, or 70 wherein said neurodegenerative disease is spinocerebellar ataxia type 2.

76. A small interfering RNA of any of claims 68, 69, or 70 wherein said neurodegenerative disease is spinocerebellar ataxia type 3, also known as Machado-Joseph disease.

77. A small interfering RNA of any of claims 68, 69, or 70 wherein said neurodegenerative is dentatorubral-pallidoluysian atrophy, also known as DRPLA.

78. A small interfering RNA of any of claims 68, 69, or 70 wherein said small interfering RNA is complementary to the mRNA for alpha-synuclein.

79. A small interfering RNA of any of claims 68, 69, or 70 wherein said small interfering RNA is complementary to the mRNA for beta amyloid cleaving enzyme type 1, or BACE1.

80. A small interfering RNA of any of claims 68, 69, or 70 wherein said small interfering RNA is complementary to the mRNA transcript from the IT15 gene, including the code for the huntingtin protein.

81. A small interfering RNA of any of claims 68, 69, or 70 wherein said small interfering RNA is complementary to the mRNA transcript from the SCA1 gene, including the code for the ataxin1 protein.

82. A small interfering RNA of any of claims 68, 69, or 70 wherein said small interfering RNA is complementary to the mRNA transcript from the SCA2 gene, including the code for the ataxin2 protein.

83. A small interfering RNA of any of claims 68, 69, or 70 wherein said small interfering RNA is complementary to the mRNA transcript from the SCA3 gene, including the code for the ataxin3 protein, also known as the Machado-Joseph protein.

84. A small interfering RNA of any of claims 68, 69, or 70 wherein said small interfering RNA is complementary to the mRNA transcript from the DRLPA gene, including the code for the atrophin1 protein.

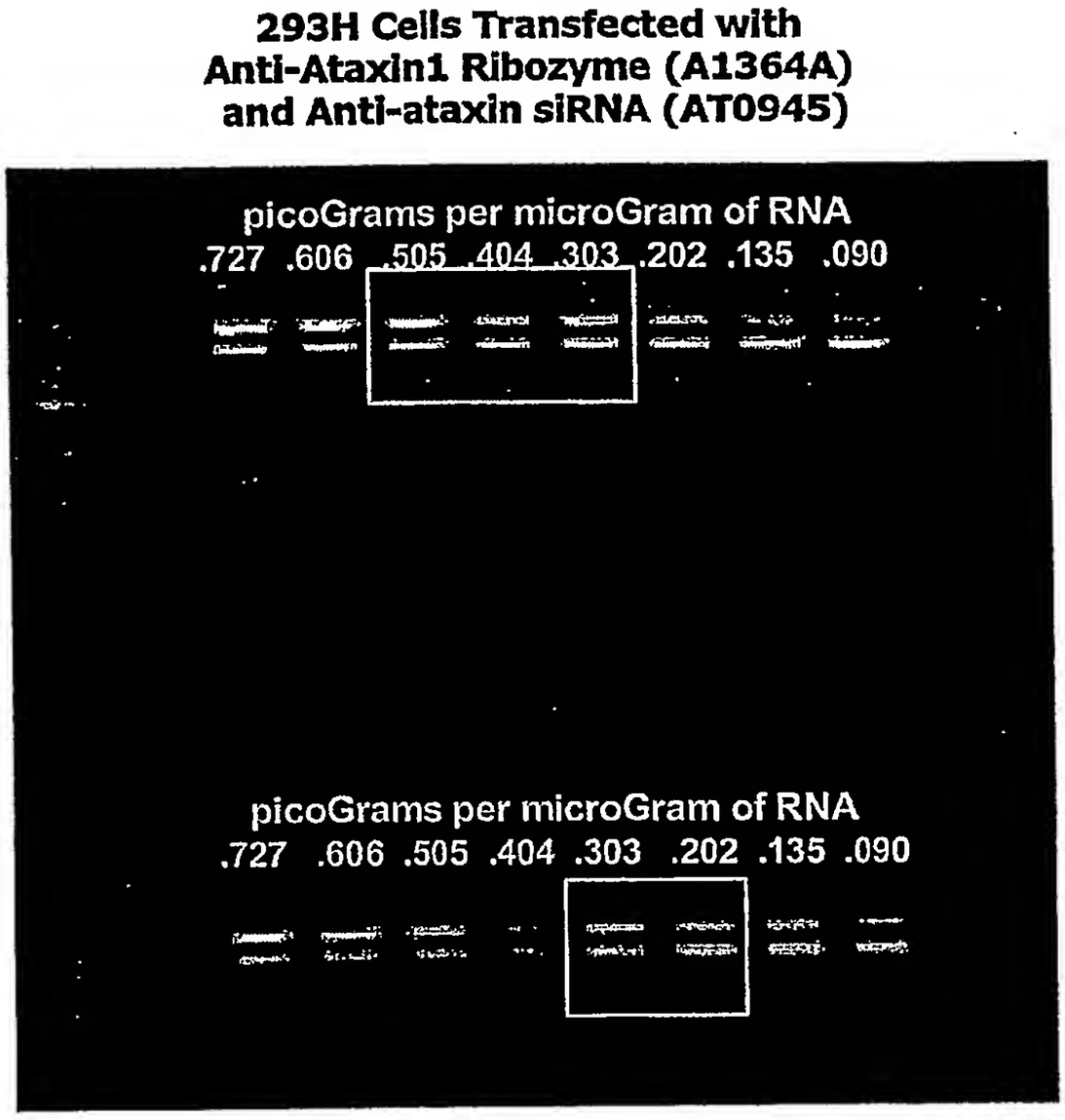

293H Cells Transfected with
Anti-Ataxin1 Ribozyme (A1364A)
and Anti-ataxin siRNA (AT0945)
picoGrams per microGram of RNA
.727 .606 .505 .404 .303 .202 .135 .090
picoGrams per microGram of RNA
.727 .606 .505 .404 .303 .202 .135 .090

FIG. 1

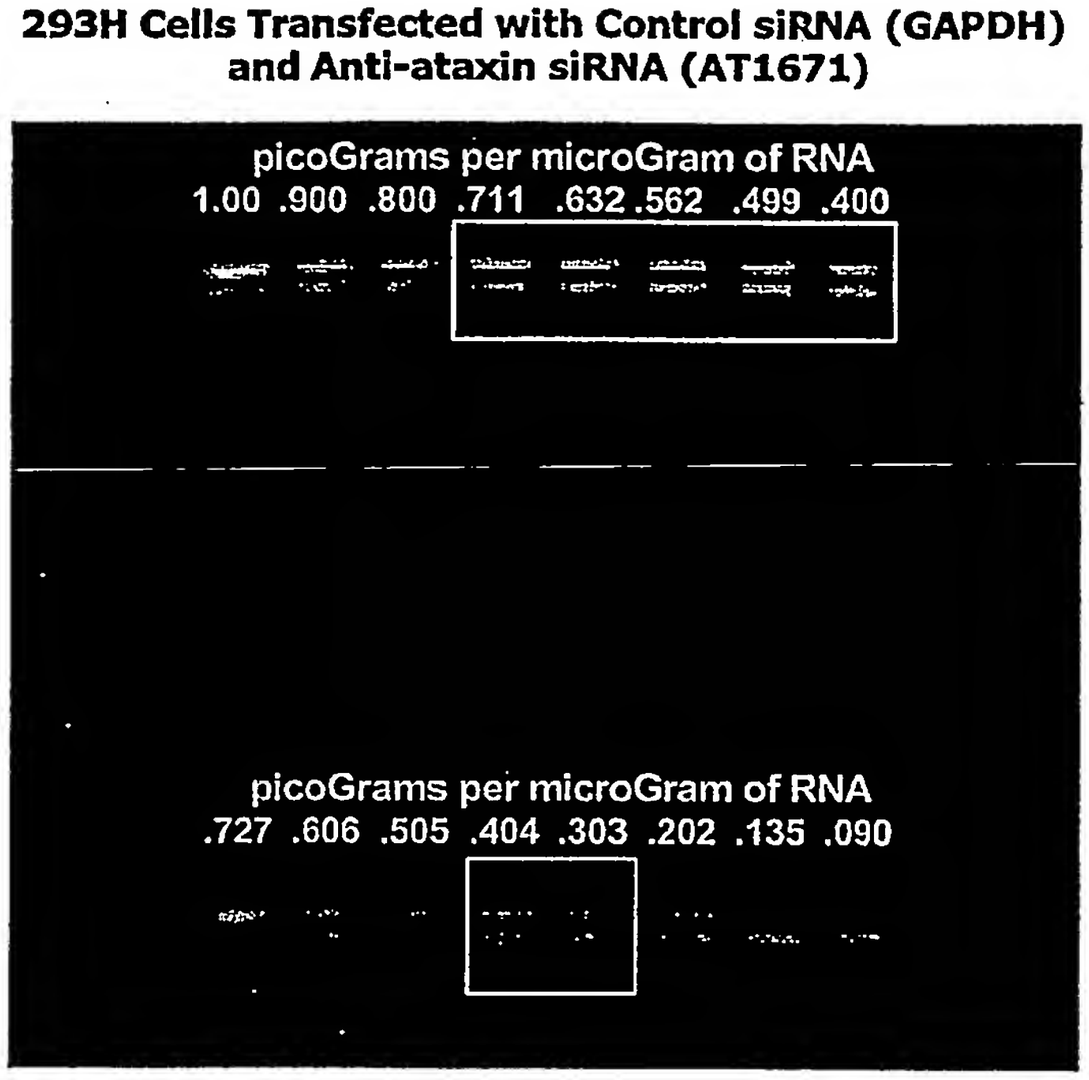

293H Cells Transfected with Control siRNA (GAPDH)
and Anti-ataxin siRNA (AT1671)
picoGrams per microGram of RNA
1.00 .900 .800 .711 .632 .562 .499 .400
picoGrams per microGram of RNA
.727 .606 .505 .404 .303 .202 .135 .090

Fig. 2

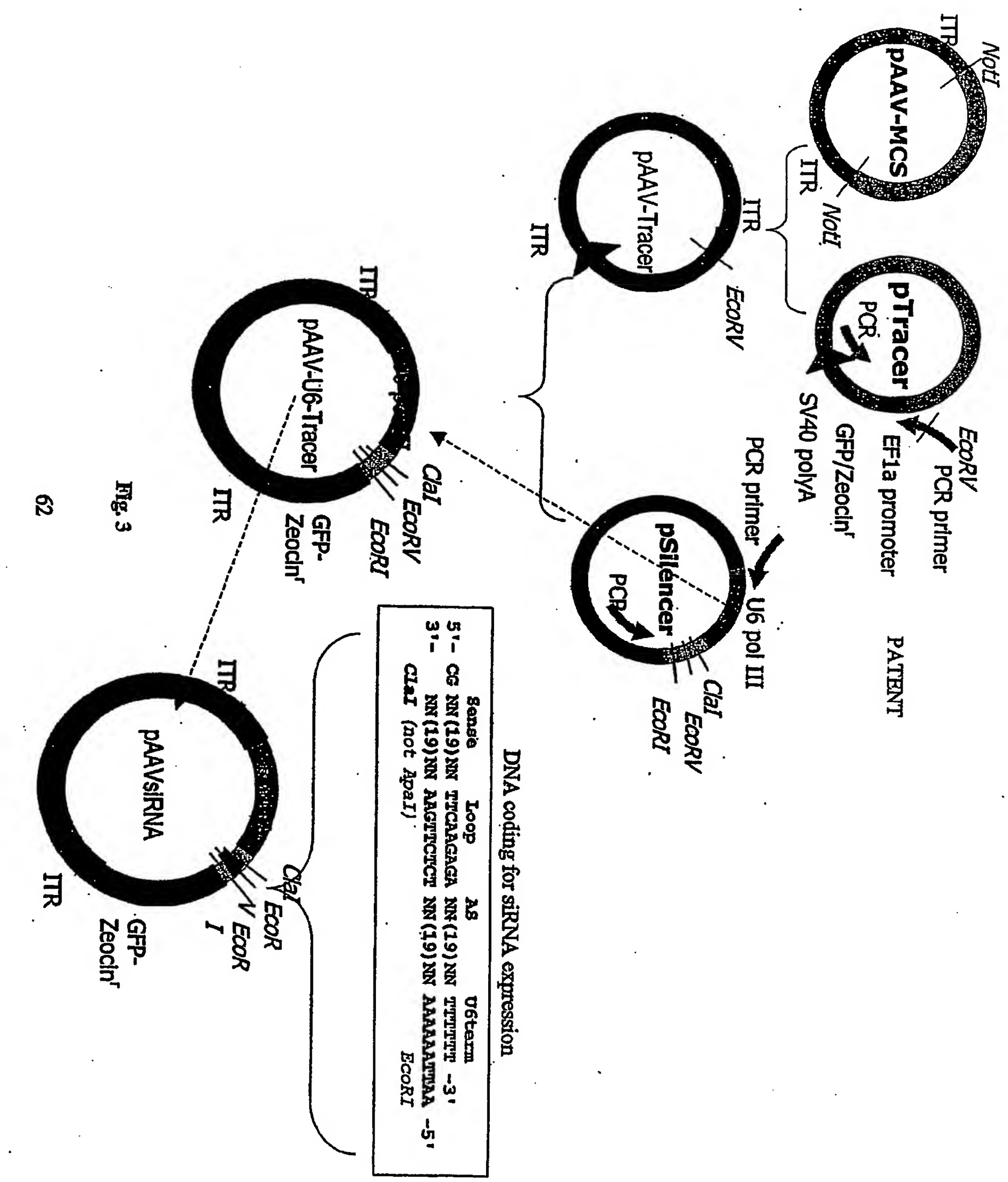

pAAV-MCS
ITR
NotI
ITR
pAAV-Tracer
ITR
EcoRV
pTracer
PCR
EcoRV
PCR primer
EF1a promoter
GFP/Zeocin'
SV40 polyA
PCR primer
U6 pol III
pSilencer
PCR
ClaI
EcoRV
EcoRI
DNA coding for siRNA expression
Sense Loop AS U6term
5'- CG NN(19)NN TTCAAGAGA NN(19)NN TTTTTT -3'
3'- NN(19)NN AAGTTCTCT NN(19)NN AAAAAATTAA -5'
ClaI (not ApaI) EcoRI
ClaI
EcoRV
EcoRI
pAAV-U6-Tracer
ITR
GFP-Zeocin'
ITR
pAAVsiRNA
ITR
GFP-Zeocin'
ITR

Fig. 3

62

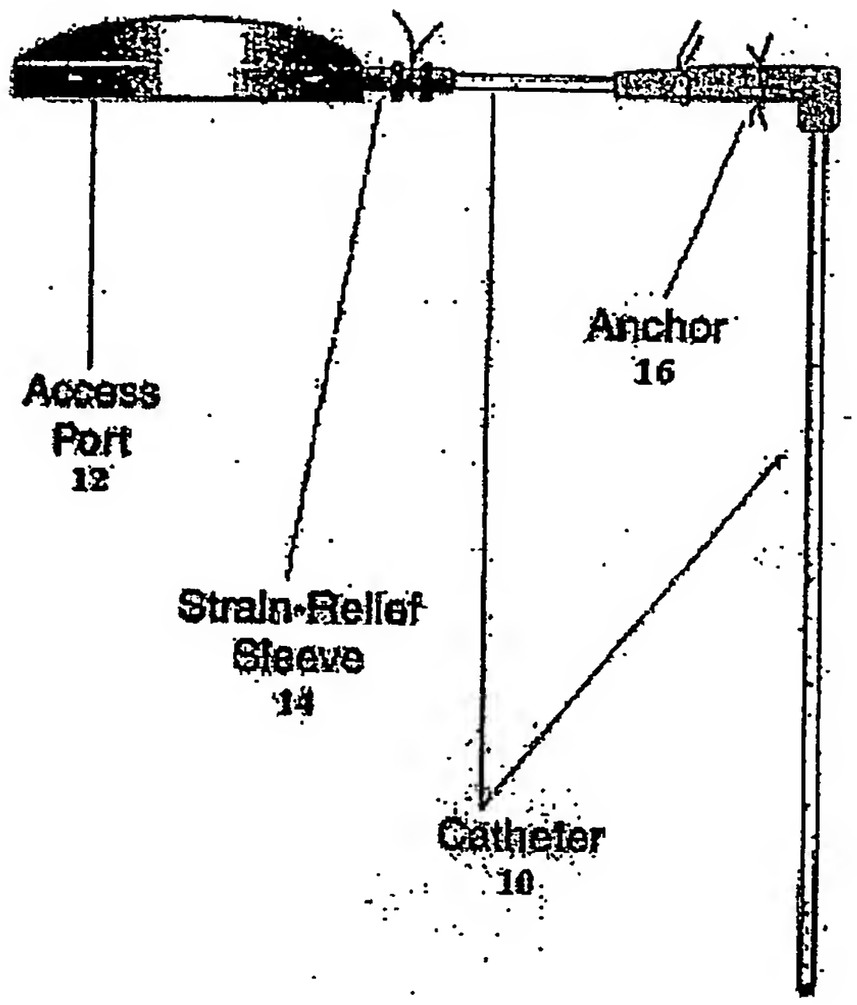

Anchor
16
Access
Port
12
Strain-Relief
Sleeve
14
Catheter
10

Figure. 4

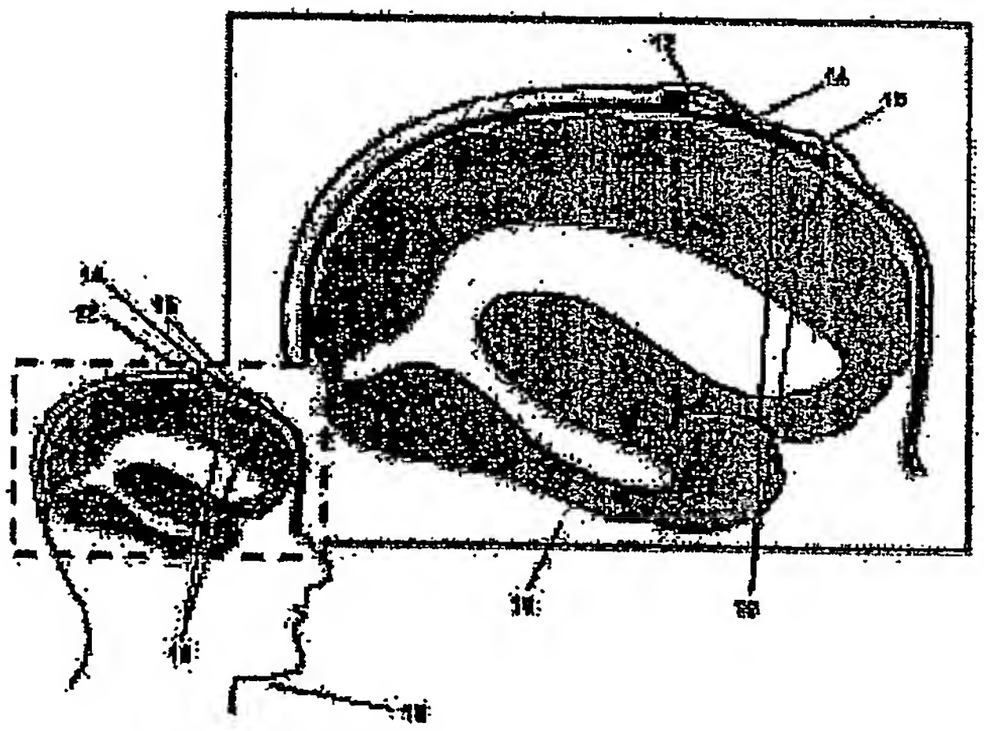


Fig. 5

# Small interfering RNA Treatment of Neurodegenerative Diseases

| Disease | Location | Gene Product |
|---|---|---|
| Parkinson's Disease | Substantia Nigra | alpha-synuclein |
| Alzheimer's Disease | Nucleus Basalis of Meynert<br>Cerebral Cortex | BACE1 (including variants thereof, e.g. variants A, B, C, and D) |
| Huntington's Disease | Striatum:<br>Caudate Nucleus<br>Putamen | Huntingtin<br>(i.e., the protein product of the Huntington's gene IT15) |
| Spinocerbellar Ataxia<br>Type 1<br>Type 2<br>Type 3 (Machado Joseph) | Deep Cerebellar Nuclei:<br>Dentate nucleus<br>Emboliform nucleus<br>Globose nucleus<br>Fastigial nucleus<br>Cerebellar cortex | Ataxin 1<br>Ataxin 2<br>Ataxin 3 |
| Dentatorubral-pallidoluysian atrophy | Red Nucleus<br>Globus Pallidus | Atrophin 1 |

**Fig. 6**

p11089.ST25.txt

SEQUENCE LISTING

<110> Medtronic, Inc.
Kaemmerer, William F.

<120> Treatment of Neurodegenerative Disease Through Intracranial Delivery of siRNA

<130> P11089.00

<160> 23

<170> PatentIn version 3.1

<210> 1
<211> 21
<212> DNA
<213> Homo sapiens

<400> 1
aaccaagagc ggagcaacga a 21

<210> 2
<211> 21
<212> DNA
<213> Homo sapiens

<400> 2
aattcgttgc tccgctcttg g 21

<210> 3
<211> 21
<212> DNA
<213> Homo sapiens

<400> 3
aaccaagagc ggagcaacga a 21

<210> 4
<211> 21
<212> DNA
<213> Homo sapiens

<400> 4
aattcgttgc tccgctcttg g 21

<210> 5
<211> 21
<212> DNA
<213> Homo sapiens

<400> 5
aaccagtacg tccacatttc c 21

<210> 6
<211> 21
<212> DNA
<213> Homo sapiens

<400> 6
aaggaaatgt ggacgtactg g 21

p11089.ST25.txt

<210> 7
<211> 145606
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(145606)
<223> LOCUS AF163864 145606 bp DNA linear P
RI 24-JAN-2001
DEFINITION Homo sapiens SNCA isoform (SNCA) gene, . . .
ACCESSION AF163864

<300>
<308> AF163864
<309> 2001-01-24
<313> (1)..(145606)

<400> 7
aattttcctt gaaaaacata gatgtccagt tctatctctc atatttttc ttttcataga 60
gatatggcac tttaggatta atttaagctg caaacagcag aaaaatgcaa aataacagtg 120
gcttaaatga aatagaaata ttttatctct tgaaaaagtt ctgataaaga cagtcaaatg 180
ctagaagggc aactgtgttc cagaaggttc tcaaggagcc aggctacctc taacccactg 240
ctctgccatc tctaattcat gtcgtatgtc ctcagggtcc acaatggcag taagaacgct 300
cctcatcata tctgtgtttc aaatagtaga atggagagaa agagaagaaa aggaggcatt 360
aaggaaggtt ccagaagctg ccatttgaca cttctgttaa catttaattg gccaaaattt 420
aatctcatat cgcataagct gtaagagatg ctggaaaact tatttgtctc cactctacat 480
ggacattatc agagtatttc tcaacagaga ggtctatgta ataatagtaa aaagtaagag 540
tggacacaaa cctagtcctt tacctttcag tagaagtaaa aatgctatat taatatttac 600
tctctctctc tctctctctc tctctctctc tcatttttgg ttttgacaat caaattcagc 660
taaatatgat tgaaactaaa atcaaggaaa atgcattata ctctgttgtt atggtaactg 720
gaatggtgaa atgtgtggat tattttcaca ccttcaataa tatgtttcta accatatatt 780
ttttaaaaat tgctgcaggg tttgcttaat gaccagagta taaaggcaca ttttttttctc 840
agttggcaaa aacacagttt tgacaaattt gacaagtttt tgtagatctg taatttattt 900
gatttaatta aattttcatc ttgttttcac aatgagttat tgaaaataaa atctaaagct 960
ttaaacagga aaattttaaa tttgaatttt cttggttgaa ctacttatac ttttcacttt 1020
caattcacta acagaataaa tacatcattc cactgaatat gagccatcca tacaaagagt 1080
ccatgaccaa atgcaatgtc actaggtatt taaagtaacc tataaattat gttctgtctc 1140
attgtccaca aaatattaca acctgcatat ttggaaaaac attttgttca tgatatgtac 1200
atatatgagg catgcatatg gataaataca tataaagttg tgaaaattag gcaaatttta 1260
tattttcgtc cactcttgaa actttcattt ttcaaaaaca aaatttaaaa tgctaacttt 1320
taaaataaat gtgccatagt agcacaatat gttaatattg gggaaaactg catggaaaat 1380

atacagaaat gcttcatact ttacaattct tttgtacatc ccatattatt tcaaaagtta 1440

aaagttttaa atatgttcag tcttgaaatg tatcagaaat gtttatctaa agttttgttg 1500

gtgttaagat taatatatta gtaatattac acacagaaag acagaaggta aaagtaaagt 1560

tagtttgaat atgactgtca ttttaagtca ttaacattta actttaccaa cttcatctca 1620

agttggccca tatcactgcc caacttaaac acatggctac atgcagcagg taaagtacat 1680

ggcaggacta ttgagatatc aaggagtcac tgtgtgtcag gaaatgataa agttccccag 1740

cgtctcctca cctgtgtcag gccgacttag ggaaaccaca ttctacgttc ataaagagtg 1800

atctgcgggc ttgaaaggca agtaagcaga aagaagtgtt tatcccagca attcatgaaa 1860

atgttgaaaa aaaagaaaaa ctaagtcagc tttccttaga acccaagttt cggcctgcct 1920

tttaaaattt tctctatcaa agctgccacc ttttttccag atgctcaaga taaaacactc 1980

aacacagaaa tgcatgattt tgttgctgag ataccggttt gttgtttaca ctctgccctc 2040

ctatccattg caccttccag ttccgcttgc tctcagtctc cacctctgat tgctacttac 2100

acaatttatc ccatgaaaca ccatcagatt attccagcac acaccagtat ctctgggcct 2160

tccctggtgc actgcactct ctcctttcca cagagcctgt ggaaagagtg gcacagtagc 2220

tggaggggca cacagggtac agagcacctt tccccaccca actcttgcgg tgctgtagac 2280

ctgaggtggt accatgaagg aaacatggac agttgagacc acatgcaaga gcccagacac 2340

acggctcaag ctcccagggt cagtgatagt gtatagctag ctgggaaccc tgcactggcc 2400

ctgtgttcaa catgagtggg tcaccctaaa agacatttca gcgtggttct gcctaccaaa 2460

tcttgcaaag aaatacctct ccactcagtg agaagtgatc cactagccag gctgccctcc 2520

tagacctgaa ttaaccatag agtcccagaa ttattctata ggcttgagcc ccagcattct 2580

gtggggcatc tggttgaccc cacaggcagc agggctagga agtctgagag tagcatctca 2640

aaagggtgaa gaggctggcc cacaggggtc ctgttcaggc tgagagtgca gctcctgaaa 2700

agcactgcaa accctgaagt tcccagcgtg ggagggaggg cgatttggag aattgtgagg 2760

aaggcattcc aaagtgctac ggtgcccaag tgaagactta cgtcgagaag aaatagaaaa 2820

atgacagctt ttccccaagt ggtaacaaga attagctaaa ccaagcctaa ttgtatattc 2880

ttcccaattt taacccattt attaaatcac tgaagctctc ctgagcagaa taaggggtag 2940

ggaaagaatt cagaataatt cagggaaaat gcctcctcat gaaaactcta aaatttggaa 3000

aacggttggt tcctagtaat cgagatagct atattttcct tcacttacca aaatgaaact 3060

taggaagttc attctctttt actcctaatc tgcaaatacc ttagtccagt gaacaaatgt 3120

gaaccgaaag agccaatctt tcaaaataca acctgagtgg ctaaatgggg ctatgtttta 3180

aatagaggca agtggccatt tgctgactaa agatcacaca tgtatactct gagttccctg 3240

aaaacctaca gctctgctca actttgggac ttccagagct cacctgatct accaatcagg 3300

cctggactgc ttcaaccaat cagggctcag ctgtatcaaa caatgggaac tgagcatttg 3360

cataaacaaa cctgactgga aacttgggtg ggaacttttg ccataataac tgaaccctct 3420

cttggttctc tggatcacac cttcatttta caccaaaagc tttgaatcac ggtttgcaaa 3480
ctgttcactg gaataaagtc tctttcttcc aaattccttt tcagagaact tttgttcaca 3540
gtccctatta tccgagataa atctgtaagc aatatgtatg tgatggaaaa tgtttcttcc 3600
ttcctcccca actttcaatc cttgttcttt tctaatcatc ttatagataa tgtctaagaa 3660
attggcttat ttaagttaaa agttttgact tccttactac tcatttgaaa gtacaaaata 3720
cctcagttgc acatgcctac ctactacgtc aacagtgtgc tgctgcatat taaaagagat 3780
ccaatttcaa atcacctaga aaaggctaaa tcttactttt tcttgcttta gatgacctct 3840
ctctatatat aaggctgata tcagccacaa acctcccctt ccttgtgaga ggagggcagc 3900
cttcaaactg aagttcagag cattgttgta caatattcct gaggtatatt gctccccata 3960
ggattgggat ctgtgccata gaacctataa atgggattta cacaagtttc tgttattgtc 4020
cagggaataa attttggacc acaaaagtga aatatataat tcccaatgcc ttttaaatgt 4080
ataaatatgg acagcagctc agtgcacttt tcactggatt aacagcatgc tgctatattg 4140
cgatactgcc aaaaaagacc ttatatttca aagcagaata cattagtcct agaaaaggag 4200
aagagcagct ctagggtatg tccatgatcc ctctgtgaat ctattgtctg cttcattgcc 4260
tgaggcagaa caaaagagca cgtggccaag aatgaggctc tggatcagcc cagcttgggt 4320
cctcggcctc aaactatggc ctcagcgaca gtttcctgat ttgcggagta aatactactg 4380
tgagtatcca acacaattca gaggattgaa tgaggttaat taacttaatt aacaagtatt 4440
aattaattaa ttaaaaacac taggtcacag cctgggccat aataagctat caataaacac 4500
ttactattgg tgttagcaat ctttactttt atttaagtga tgtaattact ccaatgtact 4560
ttatttgagt gatggaatta tagatatata tttataactt atataagtgt aagtagttac 4620
acttttggaa tatacttata caagtactta tataggttat attaaagtat atatttataa 4680
catatttata ggattaatgt aagaatattt tttataaaat gatctaacat gctaaaatat 4740
agaaattaat tagtaaaatt ataatttact ttagcttgtg tttatttgac accaactacc 4800
tggacattta gtccatttac tgcagtactt ctccaggtat gattcttggg ccagcaccat 4860
cagcattacc tgggaaatga gttagaaatg cacattctca ggccccacca caggcccata 4920
taaaaaccat ggatttagtg tatctagaag gacaaaaatc aaaacactta gcttcattca 4980
ggaaaaaaat aattctgata ttgatagata cctctcttca cttttaaaag tttcttctta 5040
tagaaaccag atctgattgt attgttaaaa ttaaacttgt aaatttttttc acaacgaatt 5100
tcctgtatgg tggtctatgt ttggggaaat actcatcccg gaactcaact gtacagggtt 5160
gggcatgttt tacatacaag tgtatgtctc tcttcttgtc ttccttctcc cttgaaccct 5220
agtctccctc cctgcctttt cagaagtttc cccctggagt tctcagccta ttctctttta 5280
tctttccatc caaacgtagt caccaatata gtcctctttt ctctctcaat ctacacagca 5340
gaagcctcca ctgctgcttt agaatccaga gatatttcca atcccattat ccccaaagat 5400

gaagtctctc ttaaaaatcg agattctcta ttttagtagt ggtggctctg tgttcatgct 5460

gttccctctg cctagaacag catttcttca tattttcaca tatttttaca gcacatggca 5520

cataaaaagc acacaataaa caccaacatt ctgagttaaa aatgtgaaat gtcttttcct 5580

gcaaaaataa tatatgcctg gtgtttgtcc cagttcaata cacatttatt gactgcctaa 5640

tactttgcag gcattgaaca aagcatgggg tagaaataat aacagtattt tctccccaca 5700

ctgaagtagt gtgcactcta caaataggga agatatatat atcttcctta tattatatat 5760

atttatatat ataaatatat atttatatta tttatatata tataaacata tatatataaa 5820

tagattactt tcacataatg tcacaggtgt agcaatagga gagtacacac agtggcttgt 5880

gaatactgag gccaacttga gagatcagaa aaggttttta ggagaaggtg atgaagggct 5940

gaatatattt taaaactgtt aaatgtgttt tcaaagggca ataaacaccc atatgttcca 6000

taaatattat aaacagcatg cttattcaag ttagttcaga ttatgttttc aaaagcaaaa 6060

tagatttaag tcacacttat tctttccttt aaataaaatg ttcttcaagt taaaagtatt 6120

atgaagtatg tctgggaacc attttcttgt tggaggccct taacatcttc acatattccc 6180

aaatcagaaa ttagcaaacc attttgacat ctccctcttc ctcaattctc tcatacaagc 6240

atccctaagt catatccatt gcatttccaa tgtttttcaa attatttttt cctttaacat 6300

ttgtattgtc agtgccttat ttttgcatct cctaatttct ttctagataa catcctaatt 6360

ttttccccca aatctagttt tcatcccctc caaatatctg caagatatca cagtgctctt 6420

taagcaaaac aaatcggatc acatttttct cttatttaaa tcttttatta ttatgctcct 6480

ctaactagga tgaatatgca tcccagtttg tccaaatgta gatattccag ttttatactt 6540

gctgactagc ataattgtca ggagtgtctc ctttcactct cagaagtgcc tgttctgaat 6600

tcaaaattat atagttagcc ttctcattgc cttcattatt ttgttttaat tcaataatct 6660

tacattaaaa tcttcattta taatgtgagt cctgccatta agagatgcaa gattgctctt 6720

acacccggct ttacccttttt acaatttgag ttcatcaaaa tcatggatta tgtcttaaaa 6780

acaactagta tttaacacca tgcctgccat tgaataggca tgtaatgatg tttattaaat 6840

tttaaatagc tacatttaaa attgaaggtt ttgttattaa tcatattcta tgtgaaacat 6900

ccttagatta ttgaaagcat ccatatgctt ttcgacattc ttttatatat atatttttat 6960

tatactttaa gttctaatgt acatgtgcac aatgtgcagg tttgttacat atgtatacat 7020

gtgccatgtt ggtgtgctgc acccactaac tcgtcattta cattaggtag atctcctaat 7080

gctatccctg ccccatcccc ccaccccaca acaggcccct gcatgtgata ttccccttcc 7140

tgtgtccaag tgttctcatt gctcaatttc cacctatgag tgagaacatg tggtgtttgg 7200

tattttgtcc ttgcgatagt ttgctgagaa tgatggtttc cagcttcatc catgtctcta 7260

caaaggacac gaactcatca tttgttatgg ctgcatagta ttccatggtg tatatgtgcc 7320

acattttctt aatccagtct atcattgttg aacatttggg ttggttccaa gtctttgcta 7380

ttgtgaatag tgccgcaata aacatacatg tgcatgtgtc tttatagcaa catgatttat 7440

attcctttgg gtatataccc agtaatggga tggctggatc aaatggcatt tctagctcta 7500
gatccctgag gaattgccac actgtcttcc acaatggttg aactagttta cagtcccatc 7560
agcagcataa gagtgttcct atttctccac atcctctcca gcacctgttg tttcctgaat 7620
ttttaagatc accattctaa ttggtgtgag ataatatctc gttgtggttt tgatttgcat 7680
ttctctgatg ggcagtgatg atgacccttt tttcatgtgt ctgttggctg cataaatgtc 7740
ttcttttgag aagtgtctgt tcatatcctt tgcccacttt ttgatggggt tgtttgtttt 7800
tttcttgtaa atttgtttga gttctttgta gattctggat attagccctt tgtcagatga 7860
gtagattgca aaaattttct cccattctgt aggttacctg ttcactctga tggtagtttc 7920
ttttgctgtg cagaagctct ttagtttaat tagatcctat ttgtcaattt tggctttcgt 7980
tgccattgct tttggtgttt tagacatgaa gtccttgacc atgcctatgt cctgaatggt 8040
gttgcctagg ttttctccta gggtttttat ggttttagat ctaacattga agtctttaat 8100
ccatcttgaa ttaatttttc tataaggtgt aaggaaggga tccagtttca gctttctaca 8160
tatggctagc cagttttccc agcaccattt gttaaatagg gactcctttc ccaatttctt 8220
gtttttgtca ggtttgtcag agatcagatc attgtagatg tgtggtatta tctgagggct 8280
ctgttctgtt ccattggtct atctctctgt tttggtacca gtaccgtgcc attttggtta 8340
ctgtagcctt gtagttttgg tgtggatgtc ctttctgttt gttagttatc cttttgacag 8400
tcaggatcct cagctgcagg tctgttggag tttgctggag gtccactcca gaatctgttt 8460
gcctgggtac cagcagagcc tgcagaacag cgaaaattgc tgaacagcaa atgttgctgt 8520
ctgatcgctc ttctggaggt ttcatctcag aggggtacct ggctgtgcga ggtgtcagtc 8580
tgcccctact tgggggtgcc tcccagatag gctactcggg ggtgaaggac caacttgagg 8640
aggcagtctt tccattctca gatcccaaac tccatgctgg gagaaccact actcttcca 8700
aagctcttcg acagggacat ttaagtctgc agaggtttct gctgcctttt gtttggctat 8760
gccctgcccc cagaggtgga gtctacagag gcaggcaggc ctccttgaac tgcggtgggc 8820
tccccccagt ttgggcttcc tggccacttt gtttacctac tcaagcctca gcaatggcga 8880
gcgcccttcc cccagcctcg ctgccacctt acagttcaat ctcagactgc tgtgctagca 8940
atgagcaagg ctccgtgggc atgggaccct ctgagccagg cgcaggatat aatttcctgg 9000
tgtgccgctt gctaagacca ttggaaaagc gcagtatttg ggtgggagtg acccgatttt 9060
tcaggtgccg tctgtcacag ctttgcttgg ctatgaaagg gaattccctc acccccttgca 9120
cttcctgggt gaggcaatgg ctccctgttc ttcgggtcat gctcgatgtg ctgcacccac 9180
tgtcctgcac ccactgtcca ataagccaca gtgagataaa cccagtacct cagttggaaa 9240
tgcagaaatc accagtattc tgcgttgctc acactgcaag ctgtagactg gagctgttcc 9300
tattcggcca tcttggaact gccctcactg actcaacatt atttttaaca tgtttattta 9360
cacatttata aaatgatcac tgagtactta atacataatc tagttgagca atgtcctggt 9420

gatgcttgga tatgagaaaa tgaaaaaaca aacatctaat tacagatgct cctcaattta 9480

cagtgatgtt atttctcgat taacctatca taaattaaaa atattgcaaa tcaaaaatac 9540

acttaaacac ctaacttatc aaacactata gcttaagctt ttcctaactt aaaatgctca 9600

gaacactcac attaacctac aaatttggac tcctacattt gggtaggcta atgtaagtat 9660

tctgagccct ttaaggcagg ctaggctaag ctatgtttgt gcatgacaca aagcccattt 9720

tacaataaag tgttgaatat ctcaggtaat agtattatat cacatatcaa tagcccagga 9780

aaagatcaaa atttaaaatt ttaagtacaa tttctactaa atgggcatca ctttgacacc 9840

attgtaaagt caaaaaatca taagtttggg atcatctgta aatgagggca caattcccac 9900

aagaagattt cagaatcaga ttcaagatat tgtgaggaca caaaagagga agttatcaac 9960

tctcagggag tggaggggaa aaaacggctt tatgaaagaa atgacttttg ggcagtcttg 10020

gaagataagc aattgtaaat aatcagtaga actgcagtag gacataagac gagccatgga 10080

ttagcctaga caggttacat agaggtcaga gctcagagga gattattggc cagtccttgt 10140

aaacaacgat gagtgtctaa agagtgtcat gtaagagaaa gagagaaaca gtataaaaat 10200

tcataaaagt cagcctggta gcagtgtgac aagcgtactt aaagaaaaag acacttgccc 10260

taagtcaaca aagtttattt cagaataaga attatattaa tatataggca tctgaattca 10320

atagtatttt tgccaaaatc aaggcataat gtgtaaaaat gtattcattt atatcccacg 10380

ttgattgaag tcatttcttc taattttcag gttttagctc tgcctatgca cgtggatgag 10440

acctaggtct caatcaaggt ctggcagttc agaaggtcaa gtcagaccat caaccatggt 10500

agctacttca ttgaccagcc tcacctagaa tgagtataac tgtgaagctt ttcaattttc 10560

tttattattt tagccatact gctatcatta ggatatttga cctctccaaa cttcacgttg 10620

aaatttgatc cccaatgttg aacatggggc ttcatggaag gtgtttgggt aatggggca 10680

gatccctcat gaatagatta atcccctcct taggcatggt gatggtaagc gaattctcac 10740

tctattagtt accaagagag ctggttgtta aaaagggctg ggcctggtac ctctctcccc 10800

tctccctctt gcttcctttc tcaccatgca atctctgcac attccagctc cccttcacct 10860

tctgccatga gtggaagcag cctgagacac tcaccagatg cagatggcca attttaaact 10920

tttttcgaaa tcagaattgt gagccaaata aatatttttt ctttataaat tatcagtgtt 10980

ctttactagc aacacaagtg aactaagaca catactgtgt ttgctttctc tttcccatcc 11040

cttaatctga gtagaaatta taactttgac aaattcaatc attaaattta ctccaaaagg 11100

tggtaaacta attcaaaact ttctcctccc tcacattagg ccagaattgt atgatatctc 11160

tggcaacatc ttctcctttc cactcctttt agagtaaaca gagatgaatt tatgcattgg 11220

ttgcctgtac gtggtatgag aacatccttg gcctcagttt acttcgttca gatttcatca 11280

gttgctagta gcttttgctg atatgtgaat gttctgtgct tattaagaaa ggttattatt 11340

gtggtaacaa aatctacctt taaatctagc gttataaatt caattatttt actgttgatc 11400

cctttaaatt caccatattc catgaataga aagtgtctag gacttggtcc tgtgggaatt 11460

tcttatttta agtaaacact gagtgctaat gcatgtcagc tctcctcttg ccattttgag 11520
attttcaaga tcttgctagc tttgaaagtt gaattgggtg aaataaaaat gctgcaatat 11580
taaaaaaatt taaatctcaa agacctcaag acatagttca agacttttaa aagttcaagg 11640
gtttgtcaat aaataataaa gaatcatttg ttgctttaac aaagaacagc aaaggatgtg 11700
taacataact ggaacattca ataatggctc tatcaaattc ctaaaataag cttaaagaaa 11760
cataagatct acatattaat atttatgact gtttctgaaa aggatatgag ttaaaatctt 11820
tcccaacagt tgatattaaa caaaatgttt gtccaaacaa aaaaacagaa atttaattgt 11880
atttttaatt aaaatgatgt aactcatatt atatgccaat taaaaaataa agggaaccac 11940
tgggggattg gtcatttaaa aaactgatat aggggctggg cgaggtggct catgcctgta 12000
atcccagcac tttgggaggc cgaagtgggc ggatcacctg aaggcaggag tttgagacca 12060
gcctgaccaa catggagaaa ccctgtcttc tactataaat acaaaattag ctgggcgtgg 12120
tggtgcatgc ctataatccc agctactcag gaagactaag gcaggagaat cgcttgaacc 12180
tgggaggcag aggttgtggt gagccgagat tgcaccattg cactccagct tgggcaagaa 12240
gagtgaaatt ctgcctcaaa acaaaacaaa aaactaatat aggtgatgaa aattgtggct 12300
gttgttataa attgttactg gtcaatgagt ttactacaga aacgtgtaca cacacgtata 12360
caataaatgc tatatattac atgaatttga aaaataatat gcattatggg acagcaactt 12420
caacttttca cagattttaa atgcaaacat ttgaaaaatg aaggaagaag agaatataga 12480
agtggagaag gagctgggga aaaaggaaag gaaggaaatg agaaatacac cttggataaa 12540
caaactgata agttggtgca ttttgaaaag agagttggat agagaactga accatattgg 12600
taactggaga tatgactcat tatttcatgt aatgatggta ttaagcacca actgggctaa 12660
gaatgcatta aaggaaaaaa cataggcatt ggaaacagga gagctgcgtt caaatcctgg 12720
acctatagtt aaagctccct aaggactcac tttccttatg tttcaagtaa gagggagaga 12780
ggtactcatt attcttacct taaaggttaa tgtggggggt taaatgctaa gaggcaagaa 12840
acatattgct tgctacaatt agtgctaaaa aatattaccc cttttcttac tcaatttgag 12900
aggtgctagg ttcttaacat ttgtgcattt tcttgtttgt tttacatata ggcagaggaa 12960
aggcaagata ccatctttag tcatttaaat ctatgatttg gagaaaagat gttttcaaag 13020
tatccttgct cattgacttt gctatactag acagtatgag tattagcttg cagactttat 13080
gagtgtaata ataaaacaga attctatgca tctagaagta taagcagaat ttttactgag 13140
taattttaaa actttttttg ctattgttca gatcagctta gtccaaattt tttaattagt 13200
tattgaggta gagactaaaa tgtactttct cttacattac atactgaaaa tattattgca 13260
tgtttgatta gttaatatgc atattattaa ttattgtagg tagtaagaaa actgatctaa 13320
aatctttgtt tactcaacct gtttatcatg gtcttaagga acttttttgta aactgcttta 13380
taattttact gtcatatatt cagaatagtc ttattcaaat acatccaaaa cactgagtat 13440

atcaataaag tctttcaaaa accaggaaaa aatagtgggt ttttccaaag atagaactta 13500

atataagaat ttctgtaact gtactgaagg actgccaaag gacataatgg agtaacagaa 13560

agattaataa attcagaaag cagggatctc ccataaaaga agagcaatga aagatagagg 13620

ttggggttat taaaaccaaa aagcttaaag ccatacctct gtagagttgg cacttatact 13680

tctgaggtga ggtgctggca cctcaggggg catgaggtga agccttgagg agcttcagtc 13740

agatgcatga ggaaggggca ctgcatggat ggctggtgct ggttactcag atgctcaggg 13800

gaggagtccc acattgttgg gcctcagaga tctgaggaga ggatgctgca ttcgaggtcc 13860

cggaatccct gaggggagct tatatggttt ggctctgtgt ccccacccaa atctcatctt 13920

gtagctccca tagttcccac gtgttgtggg agggacctgg tgggagatag ttgaatcatg 13980

gggtcgggtc tttcttgtgc tgctctcatg atagagagta agtctcatga tatctgattg 14040

ttttaaaaat gggagtttcc ctgcaaaagc tctctcccct tgcctgctgc catccacata 14100

agacgtgact tgctcctcct tgccttctgc catgattgtg aggcctcccc agccatgtgg 14160

aactgtaaat ccattaaacc tctttctttt gtaaattgcc cagtctcagg tatgtcttta 14220

tcagcagcat gaaaatggac taatacagta tattggtacc aggagagtga ggcactgttg 14280

aaaagatacc ccaaaatgtg gaaatgactt tggaactggg taacaggcca gggttgtaac 14340

actttggagg gctcagaaga agacaggaaa atgtggaaaa gtttgaattt agtagagatt 14400

tgttgaatgg ctttgcccaa aatcctgata gtaatgtgga caataaagtg caggctgagg 14460

tggtctcaga tgaaaatgag gaacttgctg ggaactgaag caaaggtaac tcttgttata 14520

ttttatcaaa gagactggtg gcattttgcc ccgccctcga gatctgtgga actgggaact 14580

tgagagagat aattcagggt atctggcaga agaagctcct aagcagcaag gcattcaaga 14640

tgtgacttgg gtgctgttaa aagctttgaa ttttaaaagg gaagcagatc ataaaagttc 14700

agaaaatttg cagcctgaca atgtgataga aaacaaaatc ccattttctg agaaattcaa 14760

gctggctgca gaaagttgca taagtaacaa gaaaccgaat gttaatgccc aagacaatgg 14820

ggaaagtgtc tccaggacat gtcagaggtc ttcacaacag tcccttccat cataggtctg 14880

gaagcctagg agggaaaaat ggttttgtcg gccaggccca gagtccctgt gctgttgtag 14940

gctagggaca tagtgcccta catcccagct gctccagcca tggctgaaag aggccaatgt 15000

agagcttggg tcatggcttc agagggtgca agccccaagc cttggcagct tccacatggt 15060

gttgagattg caagtgcaca gaagtcagga agattgaggt ttaggaacct ctgccaagat 15120

ttcagaggat gtaaggaaag gcctggatgc ccaggcagaa gttttctgca ggggtggggc 15180

cctcatggag aacctctgct agggcagtgc agaagagaaa tgtggggtgg gagccccata 15240

cagagtccct actggggcac ctcctagtgg aactgtgaga agaggaccac tgtcctccag 15300

aacccagaat ggtaggtcca ccgacggctt gcaccatgtg cctggaaaag ctgcagacac 15360

tcagtgccag cccatgaaag cagccaggaa ggaggctgta ccctgcaaag ccacaggggc 15420

gaagctgccc aagactgtgg gaacctacct tgtgtgtcag agttacctag atgtgagaca 15480

tggagtcaaa ggagatcatt ttggagcttt aagatttgac tgccccactg gatttcagac 15540
ttgcatgggg cctgtagctc ctttgttttg gccaatttgt cccatttgga atggctatat 15600
ttactcaatg cctgtacctc cattgtatct aggaagtaac taacttgctt ttgattttat 15660
cataggtggt atcataggtg gaagggactt gccttatttc agatgatact ttagactgtg 15720
gacttttgaa ttaatgctga aatgagttaa gactttgggg gactgagaaa acatggttgg 15780
ttttgaaatg tgaagacatg agatttggga ggggccaggg gtagaatgat atggtttgtc 15840
gctgtgtccc cacccaaatt ttatcttgta tctcccataa ttcccacgtg ttgtgggagg 15900
gacctgatgg gagataattc aatcatggga gtgggtcttt cctgtgctgt ctctcatgat 15960
attgaataag tttcatgaga tctgatggtt ttaaaaatgg gagtttccct gcacaagctc 16020
tctcttcttg cctgttgcca tccatgacat gctcctcctt gccttccacc atgattgtgt 16080
ggcctcccca gccatgtgga actgtaagtc cattaaactt cttgcttttg taaattgccc 16140
tatctcagct atgtctttat cagcagcatt agaaaagatt aacacaagag caataagaat 16200
gtttctggac atgtagaaag aagttaaagg ctggaaccaa ttgctgtcac tggaacaaag 16260
gaagatggct ggagtgcggg tgccactaac agtaacaatt atcaaataag aaggatcaaa 16320
cgccttttct cccgcctttt actgtcttct aaagtcatta attggcagaa tatcatagaa 16380
agccagatgg tacaggaaca taatttgtag accttagccc cagtgccaga gagaaagggg 16440
aaaaaaatag acttaaagag caatggcttt gtaactagca tactgacatt ttgtaagttt 16500
agaaaactct tattttatca gttttgttct gcaaattcac ttatttagtt attaacatgt 16560
gttgtttttg tgataatcca tcaaaaagaa ctgagtatct ggtgtttatg gaaagcaaac 16620
taatatctga gtataatttt catttcaatg ttaaatgtct ttatttaaat acagagaaca 16680
gtcgactatc atcatcattt caactgatta tccaactatg acatctagtt gtaaaacaga 16740
aattaattct cagaagttat tactttctat caaaccttaa atattcatca ataagataca 16800
tcttttctag gaccctataa aatgattaat aaatttatta ttattattta ctgtacaaat 16860
attctgctgt tatttattaa aacagaagta ttccatatcc tgaatcagta caatgttaat 16920
ctcctctgtt tactatgtcc atggaaaaat gtgccagtga tttgattagg accataaata 16980
tttgtttttg tattcagagt cccttcatgt tgtcaaaatc cttactgcct gtataatcat 17040
gtttattcct tgtgattttg ttcgtttttt tttgtttttg agacagaacc ttgcgctgtc 17100
acccaagctc ctggagtgca gcggcatgat cactactcac tgcagcctcg acctcacatg 17160
ttcaagtgat cttccccccct cagaccccca agtagctggt actacaggtg catgccacca 17220
agcccagcta atttttaaat tttttgtaga tacaggatct ccctttgttg cccagacagg 17280
tctcaaattc ctaggcccaa gaattcctcc cacctcagcc ttccaaagtg ctgagattac 17340
aggcatgaga caacatgccc agccctggca ttcaatttca gcatctataa aactgtattt 17400
attttaaggt tcctcttgaa tcacaattta tccactgagt atacatatca ggacacaaaa 17460

cacactctat cacaactgga aggacaggaa atttggagaa tatagtataa aactaatgta 17520

gtaacaagag tagcctaatt tttcccaaag ggtccatgaa ttcacaccct actggacagc 17580

tgctctcaag ttttcatttt tttcacagag tgttcaataa ttctgtcatt gaaaagtgtt 17640

tctgccagga ttgatggtgt gaaataaaat ttatgggagc cattgctttg gactgagatc 17700

ttgcactagg cccaagggac cagacaaaaa tagtgactca tgttacagtc ccacattatc 17760

aagccaaaac taagttgttt gtctgacctt cctagaaatc aagagagtaa gagacaatag 17820

ccaaatccct agaggagcca gttttagcta gcatgataag gaagtcccct ctgctttaac 17880

ttttataagg aaagaacctt tgaaataaga aatctacttt ttgctctctg tttctgcttt 17940

ccttggcctt ttactgtata taaaaccaaa ctcctctgct cagcttatca aaaaactcat 18000

tatattatat agaatgaagt gtagcctgat tctagaatta cagataaaag ccaattaaga 18060

cctttaaata agttgtaatt ttgtcttttg gcaacagttt ctgaactgag tctgggaaat 18120

aaataatcca acaaccaggt aaaaggaata gagaaagatg agtgaattcc ttaaagctgt 18180

cttttctcat tctggtaagt tccttcactc tactaaaata aataattcta ccacctggat 18240

aaatttggtt ccttaatgga aaaataatat catcagtaaa agtggaaact ctgggtaaga 18300

aaacggaaat aattaaaatg cctaaaccaa ctttattgtc attaaaatat caaacagatg 18360

aactagaatg attcaataag atttcaaatc aactgttagc agtcttttca tgtagaaaga 18420

agtctgcatt taggaagccg ttgaaagaaa ttgctaagct ctaaggacag gtcctgtcca 18480

gaccaaagca ggcccctagc cctaacaggg atcccttggg taaggagacc atttgctgca 18540

ataagaaaaa atgacatcaa aggagaggct gagtgctatg atctgaagat cagcaggtga 18600

ggaatctctt gggaatctcc tggatgcttg ctctggacac aaggcaggca ctggagatgt 18660

aaagaaatgt gtggccctca attgttcaac aaatagccat cagttcaaac tgaatatgta 18720

ataacgcatc ggtctgcaat cagaatttca aagcccagag aaatacattt aaaagatcaa 18780

tcctttagaa tatagcaata ttctttattg tctatgccct gtttagcaat caaccttcca 18840

cattttctac tgagttttct agacagctta gaatgaaagt cctacagggt aagaagttca 18900

agagttaatg gatgcttttg ttcttccagt tggttctaat aagagtggta aaatacaaca 18960

gcatattctt tataatttga ttttaatcca attttgtaca ttctcagacc taaacattgt 19020

ttaccacact aattattttt gaagttaacc tcccctcaat acccttttta aagagtgagt 19080

gctgaaatta taacagccat atgatattga tgaggctgct tttagagcct caaattcaac 19140

tccagaaatt tatttttagt tgtgcatatt tattgtaaaa tatttgtagt gccagcttat 19200

gttttctatg tccagatttt gttctccacc ttctgaagcc cacagagtgt gaaacaagca 19260

tttacaatgg agatgatggt gctaatttta tgtattttat tccctggcat atttgattgc 19320

aatagagtag acaaaaggat ggattagtag ctatgatctc tctctctctc tctctctctt 19380

tctctctctc tctctctctc tatatatata tatatacaca cacacacaca cacacacgga 19440

aggcatcaga tatctcatgt gtgtatacac atacatatat ataggatata atgatttatg 19500

tgatatatat gtgaggtaag tcttcatgtc ttccataggt atagtaccag ttggttaatc 19560
ttgggccagt catgtagctt ctacaaactt taggctttct ggacaaagca gtatataatg 19620
ttcattatgt agctatgcca aaacaaaggt caaaataaag aaagattcta cctagagcaa 19680
aagagaattt atatatataa attttatatg caaattatat acagctttat atacaaatat 19740
aaatatcacc ctgatgtagt agtttgctag gattgccata acaaaatgct acagactgtg 19800
tggttaaaca acagaaattt attttctacc aattctgaaa gctagaagtc tgagatcaat 19860
gtatcagcgg ggttggtttc ttctaaggcc tctctccttg gcttgcagat ggctgtcttc 19920
ttccagtgtc tttatattgt cttctgtgtg tgtgtgtcag tgttctaatc tgctcttctt 19980
ataaaaatat cagtcagatt agggttcact ccaaggtaag aactgaagag catgctcttt 20040
tctttgatgg ggacaagtga ctctatctag acataagtct ttggagagca gtctctcaga 20100
tgctgaccct ctctacaatg gagagagcgc atggcatggc ctgctaagct acttctctgc 20160
cattctgcta ggcaggtttc aggccctgac aatataagac gtgagcctct actcatcttt 20220
ggataagtct ctctgcatta ttgcaaatac aagaagcatt ttgtagctgt gtagtaaaga 20280
gaggagaaca cttgcaatat tctcagtcaa gattctcaac tccctgaaga aaaacagtgt 20340
attttacata aattcatgct gttataatta cattatataa aaagattatt aaccaaatat 20400
tgtacatatg aaaacagagt tgaaagctct tcaactattt caactgatga ctcccaagat 20460
ggacctgact gtactgatat aatctgatgg atttttattt gaagctattc taacagaact 20520
atattttatg gtatggaaac gaagagaatt gttttaggga agagcatgtt taatgttttc 20580
aaatattttt gtctctgact taaattttgg cttttctagt ttgtttcaaa ttttcacact 20640
tgggtcaatt ctcttttgct ctaggtagtt tttttttta tcttgacttt gttttggtgt 20700
atttctgcct gactggaaaa gtttttgtaa ccccactttc ttttcatccg attagtagct 20760
cttctgtgtc catagataaa tatatccttt acttctgtga gcattatttt ggtatatgta 20820
tttttgttcc agttaggaaa agagcagcaa aatgattttc tttcttgttt tcttcctaaa 20880
acttgattta gaagctaagt gggagcagcc ctttcacaca ccatcatggt agttatttac 20940
gtgcattagc gcgattcatt ttcacaaatt tatgagatgg ttaaagttaa ctttcatttc 21000
ttaaagagag agaacaagtg gagaaaaagt tcaactgcag aggcttgaga ttgtattgtg 21060
tgttgcttaa gaagaaatat ggagtcaaag tgcctcatca tttaccagtt gtgtgacata 21120
tcacaaaaag agggagtgta accagccaaa aatttaactt ggacaattgg attggtaaaa 21180
actttttatg ggatatgcag gaatacagtt cttaaaattt tataagatgg cataaaattt 21240
atttctttga taaatgatat tttcttaaga tatctttcta gaaatggaat tgctgagtca 21300
agatgcatat tgagggattt tgatacatat ttttaaatta ccttttagaa aaggtaattt 21360
ttagtaggaa agtagaagtt tatctcctat tgctaggcat actgattttt ttctttttct 21420
tatctgcatt taatcacttt tctttaatga gcatatacta cttgtataac agaaaataaa 21480

ggatgattat atttgggaag tgtcatgtca gattgtcctg tccagtttga aatccacttt 21540
gacttttaat ctaccttgag atgttatttt agctccctac aggttaaggg cataatccaa 21600
gatgattaag gagattgaat tctcatttaa ttgattgttg ccacagacac ttacacagag 21660
ataaagtcat taaacacatg tctcttttac atttgaaaag acatggcaaa taattttact 21720
gctttcttta gtatacataa tgtcataata ttgtgagtgt gcatgtgtat accattctgt 21780
ctatatctta atgatctaga atgtatatgc tactttctta catgcaaatg agctgtacat 21840
atttgagtaa tattggtgac ttttttatat aaatcaattt ttccttttga tgattacatt 21900
atacgaagat gtttgaatgc tgtttttct ttgttatgtg tatgcttata tctgtgaaac 21960
atctagctag atgtcctgca ggaatcagtt ttacatatgt aaacaggcat atttctgcac 22020
tctaaatttt gataattaaa ataattcgta actttattat tcaactctca agtgtttaat 22080
agccattact aacaaaaatt tctctttgtg gctaatctga ttacttggaa tctttttttat 22140
tgtgaccaaa aaaagcaacc ctgcacatac aactttaact tcaatatttt aatgacgaaa 22200
tttaaggata atttaaatag aaatggactc agaaaagaat cagtaagact tagtgaagga 22260
tcattgtcta ttatagagaa gttgatttaa gattaactta ttagtaatat ttaacatata 22320
taaagaatta ttagactggg tatatagaca agcgttttat tcttggaaga caaaaagaag 22380
aaaaattgaa ttcaaccgat gtatacgaaa ataaaaagta acagtaaatt aaaaatagat 22440
aattaaataa atatatgata cagtataacg ttttatagcc aagatgatgt tacaaatcca 22500
tatttattga catggatatg tttttatact aaagtgttta tcaaatagcc attaagagat 22560
aacttctttg aataatttgc tttctaaatt tcttaactac ataaatttcc agctttatat 22620
ggaacaccaa gttttcaaac cattagtgat gtgcttttta tatggtgtta aaaagtttct 22680
ttctttcttt tttctttttc ccccaagatg gagtcttgct ctgtcgccca ggctggagcg 22740
cagtagtgcg atctcggctc agtgcaacaa ccacctcctg ggtacaagca attctcctgc 22800
ctcagccccc caagtagctg ggattacagg cacctgccac cacgtccagc tgatttttgt 22860
atttttagta gagacggggt tttaccatct tggccaggct ggtctctaac tcctgacctc 22920
aggtaatctg cccacctcag cctcccaaag tgctgagatt acaggcgtga gccaccatgc 22980
ccgacctaaa aagtttctta aacgtcactt tatactctca aattatctag aaaggaaaac 23040
gtattagatt cctggatatt ttggatattg taaggaacat acttatttgc tgtatatact 23100
ctgtttgtaa cagtattgta acttcagttc aaaacaatac acaaaacatt acaagttccc 23160
gtgatatttt aaaaattcat ttatttttctt cctttctgaa tacaaatgct gttcagtctg 23220
ttgattcttc actaatctga aatattaggg actgatttct gaattggata ttcattctga 23280
agcctttcag agccactggc acaaagggtc tgtcaaactt ggaacaccat ttgttgtatc 23340
attttatttc tttctcttgg caaatccaca taattcatac aggactatgc cagtgtcttt 23400
tgaaagaaac aaggtttaag aaagtaaaaa tgttaataaa gatagtgaat gttaattctg 23460
tcattgttac tgtatttctt caagctgtgg ctgcaaactg ctttgagtga tgttattgta 23520

actcgcacat tagggagaga aagagatgtt tggtagattt ttaattaatg atccctatca 23580
atgctccttg agctttccca ctctatctct ccacaacttc catccctggt tggaaatttt 23640
ttgcttaccc atactaagtg agagttattg atgggaaggc atcagatatc tcacgtgtgt 23700
tgctggtggg atgggagact gtggaggatg ggaacaggtg gaaatctact gcaatggaaa 23760
aaaaaaaaag catgtcctag gacacccaaa acatggaggc tagataataa caatagctac 23820
ttgtactgag agcttccact ctgcctggct ctttgctatg agccacatta ttcattcctt 23880
acaacaatca aacaagacaa gtaaaatatc atgcccattt tttaatgaga aaactagaga 23940
ttagagaggt tatagatact tgctctgagt cactagtaat gagtagtaga gctttaataa 24000
gtccctgaat ttaggttgta tctagtacat ttactcttag aagtctatca tgctcaccag 24060
agttgcagag ttgcgtgtat ttcttgggct cattaatgtg ttttttttctt tctaaaacta 24120
aagtcatttg aacttgttag attttgaaat atttaaatat cttttctatc tggctttaac 24180
atctttaatc ttggaatctt gcatgccttc atattcttag gaccacgaaa ccacaggaat 24240
atttaaaatg atatctagtg gaaacaatat gaagttggcc atggggtcaa attagagaat 24300
ctgaatacta tgcttctcct tgattgctct tcccatttct tcagagtaac cctattcccc 24360
catctcatgc tcacccccctt tccaaaatca tacataatga tctcccaaca ggatgcatta 24420
ggctttctct actctaccca ctatgaaatt acacaagaag cctatcgcaa tctcactacc 24480
tcgtctctct cacaggttta cagaaggtga gaggaaggtg cagatagaga ataagaagca 24540
ggtggctcca gcatcaacat tacatcaccc cttgtgttca caacaaatat ggaatattat 24600
ccaaagataa taaacgttgt attttcttaa cttaaacaca ttaaatcagt cctctcttta 24660
atcacttgtt aatgggcagc atctttattt tcatgccatt ctactctgct gtctttgcta 24720
tagcacaagt ttaccacata ccatacctaa aaattcagtt gttctatggg ggtaaacaaa 24780
gtctaggtta agcatatatt tcatagaatg ttaatctata gcaaaattaa tgaattaaat 24840
ccagataaaa gaatcctatt atggtctggt aaaatattta tatttcactt agcaaagaga 24900
aaacaaaaca tgaatattgt agttatgaac agaatatgca tgttagtaat gcttccaaat 24960
atgttattac ttcataactt catatttctt atgaggtaca agccattcaa ttagtttaac 25020
gttatattca gagaggctaa agatttactg aagaccatgc tgtccatcaa taatgaaaag 25080
aaaaattaaa aaaactttat tttaacttct agttcccttc tttgtacttg agcagctttc 25140
cctccttaag aatacagacc tagaacatat gcaatatcac tatcaatatt atgtgtaatt 25200
aaaagttcat tggatgttta ctgtgttcaa ggcattttaa ggagtgacaa gagttaaaca 25260
tatagttgta attcaaaatg acaacgaaat tagtttacag ttttcttttt ttgtaggtag 25320
taagaaatca tctcccccta ttgaggaata ccaatataga aaaggcaaaa ctttaaatat 25380
gaatgaactg tttcataata acataagttc ttcttgattt ccattgtcac atccaaattt 25440
gaaggctatt tctaacacag ctgggttcta ccttttttcct tctcactctt taccacaccc 25500

aatctgtgag gcttcagaca caaactgcta attcaggaga caattgtgcc ttctgtaaca 25560

gtttctgcta aattgtctca gctctgccac ttaaaatagc taggtgatct cagcatatca 25620

ccaaaactct tggagctcag tttctctgtc tataaaagtt acataaaatg taattgatct 25680

gcttgttatg actaaataac atagtacatt agtcctttgc caaaggacta acaaattacc 25740

aaataaaagt ttggaatcat gttaaacgtt tataagaagt acaactgtcc agaaataatt 25800

ctctcacatt ggtctgttgt aatgagacct aaaatatctc attttattta cctctttgac 25860

ttaaagcact aggtctcaag gaggtcatgg ttatactata aatatgtcat gtgaaataat 25920

atattaaata attgttgtaa tactctattg agatactagt tgtaaagagg cacaatggaa 25980

aacttatact attaacagta gtaaaaagaa acaacaaaaa gcaataaaaa acaaaacacc 26040

cattcatgca acgacatgaa cgaacctcac aaatattata ctgagtaaaa gaagtcagac 26100

aaatataaaa caaagtttat actacgtgat tagatcttta tgacattcta gaatatgcac 26160

atgaaggtac aaggtaactg tctggaatga tgaaaatgtc ctgtgtcttc aaaatagtgt 26220

gggttacact aatgcatggc tttttcaaaa ctgatttaaa gggacacaac atctgagcat 26280

ttccctaggt gtaaattaca ctgcaatttt aaagaatcat ctaatgatat tgtggttatt 26340

tttaaacagt ccttaaattt tgtggatgca tactgaatgt ttacagcgga aaagatatat 26400

ataaagcttg aatttggtaa aaaaaaaaaa aagagggagg attggtagtg ataaagtgag 26460

tggacttatg gatgagacat gatcagccat gcattgaaaa aatgtaaaag ttggatgatc 26520

ttcacatgag agtcctttat tctgtctact tttgcatatg tttgaatatt tcccataaca 26580

aaaagttgaa aatagagtga tcacatgagt taatctccta atttacaaaa aagaaaactg 26640

gaaacagaag gagaacaaaa cttgttcaag gtctcaaagc cagacagcaa actagctccc 26700

aagtccaacc ttcttgctcc ggtcctaagc aaacaaaaaa tattaatatg agctactgca 26760

ttaaggaaag tctgcttttc caaagggcag accaatagtt caaggaagag tttaaataat 26820

aaatatttgt gatcttactt tcatgctttt ctattttcca ctgaacacat atgcattatc 26880

ttctatatgt cttttatgta taatcatttg cttcctgttc cttgtggttt taaagttgtt 26940

ttgtatgttt aaatttgatt ttactcaaat ttcagaaccc aaattagcgc aagaatcaga 27000

caaagcataa ctttctataa atataaaaac aattaaaaaa aaaacataca gcaaaaacga 27060

gttgttgttt ccccccctcct cttccagtgc ttaactaatc ttccgaatcc aggcacagaa 27120

agcaaaggct ttctgctagt gggaggagct tgcttctcca ttctggtgtg atccaggaac 27180

agctgtcttc cagctctgaa agaggtgaaa atgtgttaag cgatgcaaaa attgtcttga 27240

agttcgcgtg tgtatgtctg tgtgcatgtg cgtgtggtgg gtgggggggag agaaaagggg 27300

gtgtcaattc tgagggcaac gagaatcaga agtcagaaag gtgagtggtg tgtagcatct 27360

ccctttcaga aggggctgaa gaagaaattg gatatgatgg tccggtaggc taaatcacgc 27420

tggatttgtc tcccagataa agggaggtct gcaaagtaag tcccatttct agagcgaaaa 27480

gccttaggac cgcttgtttt agacggctgg ggaatattta ttccttgttc cactgatggg 27540

aaaatcagcg tctggcagga gctgattggt ggaaaggaaa atggtgatag tggcgtggaa 27600
agaggatttg ctgagccttc tcctgcctcc tcaacctgtg actcttcctt agtagtctcc 27660
ctttcaccct caggaccctt tccggctctt cctagattaa gagcaaacga aaaccttgaa 27720
gatatttgaa ctaaagcgac ccctaacgtt gtaacctgtg accgtgatta aatttcagcg 27780
atgcgagggc aaagcgctct cggcggtgcg gtgtgagcca cctcccggcg ctgcctgtct 27840
cctccagcag ctccccaagg gataggctct gcccttggtg gtcgaccctc aggccctcgg 27900
ctctcccagg gcgactctga cgaggggtag ggggtggtcc ccgggaggac ccagaggaaa 27960
ggcggggaca agaagggagg ggaaggggaa agaggaagag gcatcatccc tagcccaacc 28020
gctcccgatc tccacaagag tgctcgtgac cctaaactta acgtgaggcg caaaagcgcc 28080
cccactttcc cgccttgcgc ggccaggcag gcggctggag ttgatggctc accccgcgcc 28140
ccctgcccca tccccatccg agatagggac gaggagcacg ctgcagggaa agcagcgagc 28200
gccgggagag gggcgggcag aagcgctgac aaatcagcgg tgggggcgga gagccgagga 28260
gaaggagaag gaggaggact aggaggagga ggacggcgac gaccagaagg ggcccaagag 28320
agggggcgag cgaccgagcg ccgcgacgcg gaagtgaggt gcgtgcgggc tgcagcgcag 28380
accccggccc ggcccctccg agagcgtcct gggcgctccc tcacgccttg ccttcaagcc 28440
ttctgccttt ccaccctcgt gagcggagaa ctgggagtgg ccattcgacg acaggttagc 28500
gggtttgcct cccactcccc cagcctcgcg tcgccggctc acagcggcct cctctgggga 28560
cagtcccccc cgggtgccgc ctccgccctt cctgtgcgct ccttttcctt cttctttcct 28620
attaaatatt atttgggaat tgtttaaatt ttttttttt aaaaagagag aggcggggag 28680
gagtcggagt tgtggagaag cagagggact caggtaagta cctgtggatc taaacgggcg 28740
tctttggaaa tcctggagaa caccgggtgg gagacgaatg gtcgtgggca ccgggagggg 28800
gtggtgctgc catgaggacc cgctgggcca ggtctctggg aggtgagtac ttgtcccttt 28860
ggggagccta atgaaagaga cttgacctgg ctttcgtcct gcttctgata ttcccttctc 28920
cacaagggct gagagattag gctgcttctc cgggatccgc ttttccccgg gaaacgcgag 28980
gatgctccat ggagcgtgag catccaactt ttctctcaca taaaatctgt ctgcccgctc 29040
tcttggtttt tctctgtaaa gtaagcaagc tgcgtttggc aaataatgaa atggaagtgc 29100
agggaggcca agtcaacagg tggtaacggg ttaacaagtg ctggcgcggg gtccgctagg 29160
gtggaggctg agaacgcccc ctcgggtggc tggcgcgggg ttggagacgg cccgcgagtg 29220
tgagcggcgc ctgctcaggg tagatagctg agggcggggg tggatgttgg atggattaga 29280
accatcacac ttgggcccgc tgtttgcctg aggttgaacc acaccccgag tgagcagtta 29340
gttctgttgc ctacgccttt ccaccatcaa cctgttagcc ttcttctggg attcatgtta 29400
aggataccc tgaccctaag cctccagctt ccatgcttct aactcatact gttacccttt 29460
agaccccggg aatttaaaaa aggggttaat cttttcatgc aactccactt ctgaaatgca 29520

gtaataacaa ctcagaggat tcatcctaat ccgtggttag gtggctagac ttttactagc 29580

caagatggat gggagatgct aaatttttaa tgccagagct aaaaatgtct gctttgtcca 29640

atggttaaat gagtgtacac ttaaaagagt ctcacacttt ggagggtttc tcatgatttt 29700

tcagtgtttt ttgtttattt ttccccgaaa gttctcattc aaagtgtatt ttatgttttc 29760

cagtgtggtg taaaggaatt cattagccat ggatgtattc atgaaaggac tttcaaaggc 29820

caaggaggga gttgtggctg ctgctgagaa aaccaaacag ggtgtggcag aagcagcagg 29880

aaagacaaaa gagggtgttc tctatgtagg taggtaaacc ccaaatgtca gtttggtgct 29940

tgttcatgag tgatgggtta ggataatcaa tactctaaat gctggtagtt ctctctcttg 30000

attcattttt gcatcattgc ttgtcaaaaa ggtggactga gtcagaggta tgtgtaggta 30060

ggtgaatgtg aacgtgtgta tttgagctaa tagtaaaaaa tgcgactgtt tgcttttcca 30120

gatttttaat tttgccctaa tatttatgac tttttaaaaa tgaatgtttc tgtacctaca 30180

taattgtatt tcagagaaca gttttaaaaa ctcatagtct tttaaaaaat aatcaagaat 30240

attcttaaga atcaaaatca ttgatggatc tgtgatttct tttaccatca tgaaaaatgt 30300

ttgtcaattt taatccattc tgatttttaa aatatgactt tgatatgccc ctgtgatgtg 30360

tataaagaga cctatttgtg gccctaaaat ggaaagaaca gattagtctt tgataaagtt 30420

acttcatgtg atcatttggt ctctgtgaac actgaggaca gagaaaagtg cttgagggct 30480

gctactaatc tctcagaaac atttgtatag ttcatccatc aaatgacaca catactaaaa 30540

gaataaagaa attgatgctt attacctact tgttcctaaa gttccacctt ggggtataca 30600

cccaaactct gactctcttt tctgtaactt gaactgtatt caattgagtg ttattttaca 30660

aaccactctg aattccttgg aaaagaatag acacacactc tcatccacag gcatagacac 30720

acacactcaa cacagacaca ttgcccattc ttcctctctt ctttctcctc tgagcttttt 30780

cacattctct ggtggcaact atagcagtaa gagtcacagg atgaacagtc aggtggagga 30840

tgaccacatt gagttgccta gctgaaacat gtgctctgtc tatgtctgca aagtgaaaga 30900

aagctacact atctcttcaa catagatcag tgggggaaat tttatacttg ggatgattta 30960

tatgaatgca tctcatcaaa gttcacaaca catttttttt ttcagttttt tattttcagt 31020

ttttagagtc agggccttgc tctgtcgccc aggctggact gcagtgatgc tatcatagct 31080

cactgcatcc ttgaattcct gggctcaagt catgccccca cctcagcctc ctgagtagcc 31140

aggattatag gcatgtgcca ctgcctcatt atttagactt ttcttatgtt gacttaatct 31200

tcccacaaat cttcaattaa attacttttt ttctacctta aaacatattt tcagaaagtc 31260

attgaaatag ggtgttacaa gaggaaaaaa ttgatgagtt aattttaaat attttatgaa 31320

gtgtgaatta tacctttta gatggaattt ggaatactga atcagtgaca tgcagtttat 31380

cagtatcttt ccgtttgtcc tcagatttcc aagttctgca agcacaagtt gctttgactt 31440

agttaccttt taactgttca ttgaaatcat tttcaatgtc tctcatggca tttaacacat 31500

agcacattct ataaattatt tattggttac attctgagtt ctaattgaga gttgaactta 31560

cacacagaat ttaagataaa aaatgaccat gtgaagacac aatagtatag tccagggatt 31620
ggcaaaattt tgggtaagga atcagatagc acgtatttta agccatgaga tctatgtctt 31680
ggccaggtgc cgtggctcag gtctttaatc ccagcacttt gagagcccga ggctggtgga 31740
tcacttgagc ccaggggttt gagaccagcc tgggccacag ggtgaaaccc tgtgtctaca 31800
aacaacgcaa aaattagccg ggtatggtag catgcacgtg tattgccagc tacccaggag 31860
gctgaggtag gaggatggct tgagccatac agctcactgc agaggttgca gtgagccgag 31920
atcgagccac tgcactccag cctgggtggc agagtgatac cctgtctaaa aaaaaaaaaa 31980
aaaaaaaaat ctatgtctca attctgctgt tgaagtgtga aggtagtcat aaacaataac 32040
tagtgtggct gtgttccaat aaaacttcat ttatcaaaac aggtggtggg ctggaattgt 32100
cttgtatgtt gtagcttgct gactactgat agagtggaaa gaacatgcac taatcacaca 32160
aaccaaagtt ttagttgaga ctacatcact tatcaccttt agggtcttgg ggaagcgtac 32220
ttaacatctc tgagcatcac ttccctgatt agtaaaaaat atgatttaga aaacttcaac 32280
taccttgcag tttttgtgag aatgtcataa taagacagga catatgaata attgagcaca 32340
cttttatata taggaaccat ggttattatt atcaaataaa ctctccaacg gaataattac 32400
tttgccaaca cgttttccat ttattctttt atccttcatt acataactag tttgaaaggt 32460
tggaggcgac caaagaccat tttataattt cacttatggc cgaagatgtt tggtagaagc 32520
ctcataagaa aagtaatctc attcctttat aagaatatac ttttaacaac tacttttaa 32580
ctcattgaat aactacctta atgatcagtg ttatttttat gggttttgtt ccctccattt 32640
ttgttatctg catacaccaa ttttcaatca acatacttca atttaataga caaaaatttc 32700
ttcaaatgac tcagaaatta attagatcta aatccaaaag cagaaagatt taattatctt 32760
tatataatgc tcagtaatat aaatgcaata aatacaagaa aatgatgatc tttgagtgtc 32820
ttccaatgcc actctgctca ataagcagca gtggccatca gtgaaattga tagcaaattc 32880
tcaagtcaaa atgtgcttca cctcactaag ctgacaaagt caacataaca tgcacaacag 32940
ggataactga gttctcaaaa ctctcaggta ttacttctga ccttcttctc cactctgtgc 33000
tcttttgagg ttgggaagac aagatagggt gtgtgtggga cacctccgct cagggaagcc 33060
atcagctctg gtgtccctac agcatttata ccttgctagt cacataacca cttggcacct 33120
attttgtagg tgtatgttat caattacaga ttactcataa attaaaggct aaccatcaat 33180
tacagattat tagtaaataa ttatgacctc aaagaacaac tgattggttt gatacatggt 33240
aaccttatga ggactctcat ttatctcgtt tttttaagtt atatacctat ctctttgggg 33300
ttgcactaca aaaatataaa atatgttgca taagatattt ataaaaaata attaattata 33360
agttctagtg gtgtggttta gtggcattct ttttttttc ttttttctg agatagggtc 33420
tcaatctgtc acttcactcc aggctgaagt gcagtggtgt gatctcggct cactgcaacc 33480
tccgcctcct gggttcaagt tattctcctg actcagcctc ctgagtagct gaaattacag 33540

gcacgcacca ccatgcccgg ctaatttttg tatttttagt agagatgggg tttcaccatg 33600
ttagccagga tggtctcgaa ctcctgatct catcatcctc cgacctcggc ctcccaaaat 33660
gctgggatta caggcgtgag ccattgcacc cggcctagtg gcattctttt ttaaaaataa 33720
atttaattgt gtatatttag ggtatgcaac atgatgctat cagatacatt agacactaaa 33780
aaattactat attgaagcaa attaatatat tcataatctc tcatagttac ctttttttgtt 33840
gtttttgtgg caagggcagc taaaatccac ttatttatca tgaatctcaa atatagtaca 33900
attttatcac ctacagtcct catacattag atctgtacac ttgttcatct tacacatctg 33960
ctacttgctt ggatcctatg gcctatatgt ccctattttc tacctacttt tccaccccta 34020
ttaaccctgt attttacgta gtctctgtat atttgaattt tgtttcaagc ttccacatat 34080
atgtgagata atgtaatatt tttctttctg tgtttggctt atttcactta gcataatttt 34140
gtctgggttc atccatgttg taaatggtag gatcttgttt ttttagggct gactgatatt 34200
ccattgtatc tatgtaccac aatcttttta tctacctatc tatcagtaga cactttagtt 34260
gtggctatta tgtttttctt tttttctttt ttggagacag ggtcttgctg tcacccaggc 34320
tgcaatggag tggtgttatc atagctcact gtaacctcaa acttctgggc tcaagagatc 34380
ctcctgcctt ggcctcccaa gtagctggga ctacaggcat acattaccat gcctggctaa 34440
tttttaatat tttttgtaga tatagcatct cactctgttg cccagactgg tctcaaactc 34500
ctaattcaaa tttagaatag agtatgacaa ttctgtaaaa tataaaaaac atgtccactc 34560
cgtataggaa gttatacaat gagaagaaga caaacactat ttacattact cttgataagt 34620
tttttacaaa gaaataaaac actttaattt ctaatgtttt aaattctggt ttgctaaata 34680
aataaatatt agttttagtg tttttaaaat tccttatata gttataagtg atcttcctgc 34740
ctcagcctcc caaagcactg ggattccaag caagagccac tgtgttgggg cccttggaaa 34800
cagatatgct gaaatctttt cttgtggatc tacacccaga agagggattg ctgggtcata 34860
tgctactcta tttttaattt ttcttttatt tttagtgaat atgtaataat tgtatataat 34920
tgtgggatcc agaattatat ttccatacat gtatacagtg tgtgataatc aaattagggt 34980
aattaacata tccattacct gaaacattta tcattccttt gtggtgggaa cagtaaaaat 35040
taaaaattct ctcttctaga tttttgaaca tatgcaataa actattgtta agtatatcac 35100
cctacagtac tacagaatgc tagaactcat tcctcatatt tggctccaat ttcatattct 35160
ttaaccaacc tctccatatc ctccccctccc tcttaccctt gtcagcctct aataatcata 35220
attctactct ctacttctat ctcattgtct ttgatttaga atatgtttca taatttaacc 35280
aaaggtcaaa ttcttaggta ctgctaaggc aaagaacaaa gatcgcattc cagctgttag 35340
acatttctta ctactagtca tttttaagac aacatggggt gcaggtggtg aggatgagag 35400
atagagattg aaacatattc tcttaaatat cagctgttct cactctgcat agttccagca 35460
caaacaaatt ccaggtacta tggttagtta aataacacca gcccctaaca acacaattca 35520
aatttctgtt accacagtat accgaaagtc attgcataaa gtacaaactt tgctgctaac 35580

tcttcagcct tcaaatcatt acataaataa cagaaaccca ttataatcag tgacaaaacc 35640
acagcacttc tttcaaagct ttttggagat tggttgcttc acatctgtta tgcagttcat 35700
acagacagca atgcccggac ttgtgtggcc acattgtctc ccagtggtga gcccatgtga 35760
tgtttcacaa aaatgcgcaa tcaaaagagg aaactggcca gcaaagatga aagagtagca 35820
aacaaaggaa gtgaaacatt ctggaagtaa aatttgaatc aaacataagt tgatgtatac 35880
aggaagtagc caccctgagg atgttgtcac tgctgcaatt caggagactc taaatatgca 35940
gtcagaggaa cgtagtgagg tgaaggtatc cgtataatgg ggaaagaggt tgtgataaag 36000
agtgaaggtg tcccagagga agcgatgctg aaaaatacac cttatgttaa atacactgtc 36060
agtatatcat gacattaaag tgcaaatgat aacattttgt aaactgatcc aaacttaaaa 36120
aggagtatga taattctgta aaacataaaa atcatgccga ttccataaat tatacagtgt 36180
gaattacact gaaaaatcca acattagaga ggatatgaat acaatttttt acaagcataa 36240
ttttaataat acacataata attatttgta ttcaagttta gtaatggtca aggtttggaa 36300
gaaattctga tcctgtgtag agaccctagt ttgaatgtgc ttatagccta ttattacatg 36360
tgtaatgtta cataaattac ttaactcaga tttttaattt catcagctat ttaaaatggg 36420
cataatataa ctatattaag tggatgttat gaagattaaa taagatgata tgtaaaatgt 36480
gtttttttgtt tgtttgtttg tttgtctgtt tgtttttttg agacagagtc ttgctctgtt 36540
acccaggctg gagtgcagtg gcacaatctc ggctcactgc aagttctgcc tcccgagttc 36600
atgccattct cctgcctcag cccctcccaa gtagctggga ctacaggcac ccgccaccac 36660
gcctggctaa ttttttgtat ttttggtaga gatggggttt caccatatta gccaggatgg 36720
tctcgatctc ctgacctcgt gatctgccca cctcggcctc ccaaattgct gggattacag 36780
gcatgagcca ctgcgcccag cctaaaattt tttttacata atgggtgttc agcacatgtt 36840
aaagccttct ctccatcctt cttccctttt gtttcatggg ttgactgatc tgtctctagt 36900
gctgtacttt taaagcttct acagctctga attcaaaatt atcttctcac tgggccccgg 36960
tgttatctca ttctttttttc tcctctgtaa gttgacatgt gatgtgggaa caaaggggat 37020
aaagtcatta ttttgtgcta aaatcgtaat tggagaggac ctcctgttag ctgggctttc 37080
ttctatttat tgtggtggtt actggagttc cttcttctag ttttaggata tatatatata 37140
ttttttttttt ttctttccct gaagatataa taatatatat acttctgaag attgagattt 37200
ttaaattagt tgtattgaaa actagctaat cagcaattta aggctagctt gagacttatg 37260
tcttgaattt gtttttgtag gctccaaaac caaggaggga gtggtgcatg gtgtggcaac 37320
aggtaagctc cattgtgctt atatccaaag atgatattta aagtatctag tgattagtgt 37380
ggcccagtat tcaagattcc tatgaaattg taaaacaatc actgagcatt ctaagaacat 37440
atcagtctta ttgaaactga attctttata aagtattttt aaaaaggtaa atattgatta 37500
taaataaaaa atatacttgc caagaataat gagggctttg aattgataag ctatgtttaa 37560

tttatagtaa gtgggcattt aaatattctg accaaaaatg tattgacaaa ctgctgacaa 37620

aaataaaatg tgaatattgc cataatttta aaaaaagagt aaaatttctg ttgattacag 37680

taaaatattt tgaccttaaa ttatgttgat tacaatattc ctttgataat tcagagtgca 37740

tttcaggaaa caccttgga cagtcagtaa attgtttatt gtatttatct ttgtattgtt 37800

atggtatagc tatttgtaca aatattattg tgcaattatt acatttctga ttatattatt 37860

catttggcct aaatttacca agaatttgaa caagtcaatt aggtttacaa tcaagaaata 37920

tcaaaaatga tgaaaaggat gataatcatc atcagatgtt gaggaagatg acgatgagag 37980

tgccagaaat agagaaatca aaggagaacc aaaatttaac aaattaaaag cccacagact 38040

tgctgtaatt aagttttctg ttgtaagtac tccacgtttc ctggcagatg tggtgaagca 38100

aaagatataa tcagaaatat aatttatatg atcggaaagc attaaacaca atagtgccta 38160

tacaaataaa atgttcctat cactgacttc taaaatggaa atgaggacaa tgatatggga 38220

atcttaatac agtgttgtgg ataggactaa aaacacagga gtcagatctt cttggttcaa 38280

cttcctgctt actccttacc agctgtgtgt tttttgcaag gttcttcacc tctatgtgat 38340

ttagcttcct catctataaa ataattcagt gaattaatgt acacaaaaca tctggaaaac 38400

aaaagcaaac aatatgtatt ttataagtgt tacttatagt tttatagtga actttcttgt 38460

gcaacatttt tacaactagt ggagaaaaat atttctttaa atgaatactt ttgatttaaa 38520

aatcagagtg taaaaataaa acagactcct ttgaaactag ttctgttaga agttaattgt 38580

gcacctttaa tgggctctgt tgcaatccaa cagagaagta gttaagtaag tggactatga 38640

tggcttctag ggacctccta taaatatgat attgtgaagc atgattataa taagaactag 38700

ataacagaca ggtggagact ccactatctg aagagggtca acctagatga atggtgttcc 38760

atttagtagt tgaggaagaa cccatgaggt ttagaaagca gacaagcatg tggcaagttc 38820

tggagtcagt ggtaaaaatt aaagaaccca actattactg tcacctaatg atctaatgga 38880

gactgtggag atgggctgca ttttttttaat cttctccaga atgccaaaat gtaaacacat 38940

atctgtgtgt gtgtgtgtgt gtgtgtgtgt gtgtgagaga gagagagaga gagagagaga 39000

ctgaagtttg tacaattaga cattttataa aatgttttct gaaggacagt ggctcacaat 39060

cttaagtttc taacattgta caatgttggg agactttgta tactttattt tctctttagc 39120

atattaagga atctgagatg tcctacagta aagaaatttg cattacatag ttaaaatcag 39180

ggttattcaa acttttttgat tattgaaacc tttcttcatt agttactagg gttgaatgaa 39240

actagtgttc cacagaaaac tatgggaaat gttgctaggc agtaaggaca tggtgatttc 39300

agcatgtgca atatttacag cgattgcacc catggaccac cctggcagta gtgaaataac 39360

caaaaatgct gtcataacta gtatggctat gagaaacaca ttgggataaa tcagctgcta 39420

tcataatcat tcctcttcca catcagataa atgaattaac tttttgaata gggttattta 39480

atataaagtg cttaagtcta attatgagaa gaaataagat aattacactt caatggttaa 39540

agagagggag aataatttgc atattatgcc tgatgtaaaa tgtttattat gggtacatat 39600

taagtgctaa ctaatcgtta attgttcttg ctacaagtct taatgcaggg aaacaagaaa 39660
ttattacata gtacctaata ttatcttcta atattaaaga aacaatttcc cctaaattca 39720
tcccattagc ttttttttt cggtggggca ggggagaaat acagacttca gtaaacttgg 39780
gccgggaact ttctacctac aaagttcaaa taaaataaat tatcctagtt agataatatc 39840
aatgaaaaat ccaccaactt aaatcctggc tgtttgatct caggaaatta tttcagttat 39900
caacttaatg catcatatta tagaaatata tgaaaatgtg tttaattaaa cttactgaat 39960
gatatgtttt ttaaggtact ttaaaaataa acctatgata taaagttact tatttttcat 40020
gcaagtatag tataaagaaa tttctaacac tggagatttt ctgaaggttt tgattcttat 40080
aaatttatta catcataatg aacaaaacta attttcaaca tattatgatt taaatttcct 40140
tagtaaattg ttttaaattt attttcttta aatccatatt tacatatgta tatttaaata 40200
tacatattta cttgtataac aattcaaaac catatattaa ttttataatt ttgtttaatg 40260
tcaaaggtta gatttggcta tatctattct aaaagttgct atcacatttc ctttttggaa 40320
ttttatttt aaagtagcta aagtcaaata taaacctatt atttatatta atgcagacat 40380
tagaggtaga cactaaattc gttttagtat attctaaatt atttattatc tactatgaaa 40440
taatataaag aaaaataaag cagaatccct gatttcaaag aactcagttg ccgaaaaaca 40500
gttaccattt attagaccca aaatgtacta atatgagtgt gtctcttttc cttttgtttt 40560
gtcacccgtc atttggaatg tcagtgagta gagagatagt gtgaaaggcc ctcaagggga 40620
aaaatagagg ttaaaggtca gcagagaccc tactagagaa atcagttcta cagaaatgtt 40680
tttaaatgtg tcgattattg ctacatgtac actctgtcat tttgtaatgt agccatttta 40740
tttatgatta taataataaa acaacaaaat tataataatg tgtagagtac attttactgt 40800
gcagtgtatt gcattaaaac tagattaaaa tttatacata tataaaaggt tatctagata 40860
ttataaaatt tatggctgga tctgtaaaaa attcaaaacc tatttttaat cttgctttga 40920
gattttataa caagaaaatg ttcgtttcaa gcaaaatttt caattcacgt ccttgaaaag 40980
gaaaaaaatg acaacttgaa acacataatt gactattttt aaaggatcaa catttcagaa 41040
atgttttaaa acataagatt ttcagtacag cttttcgctg gcatttaaat cgaactttga 41100
attgtaaata gctcttactc ttaaggagac atcagccata tccttagaag tggcacggag 41160
ttggtaggta gttgtacaaa attctagcct aaaagacaaa tagggagcaa cactactgtg 41220
gacccttttct ggtcttgggc tgtgtggcta tgtcaggctt gcccacattg cctgaactaa 41280
ggagaaagcc tcttgtcctt acagacccccc ttagcttaca tagtctattt gaaaacgaat 41340
tgctttgtcc acaccattta aatattggct tcaggccggg cacggtggct cacgcctgtt 41400
atcccagcac tttgggaggc tgaggcgggc agatcacgag gtcaggagat cgagaccatc 41460
ctggctaaca cggtgaaacc ctgtctctac taaaaatata aaaaaattag ccgggcgtgg 41520
tggcgcgcgc ctgtagtccc agctgctggg gaggctgagg caggagaatg gcctgaaccc 41580

gggagtcgga gtttgcagtg agccgacatc gtgccactgc actccatcca gcctgggtga 41640
cagagcaaga ctccgtctca aaataaataa ataaataaat aaataaataa ataagtaaat 41700
attggcttct tcaactggtg agatgaaaac tatacaatag tcatgtgaat agcactaaac 41760
agctgacatg gtgtaactcc tctcagactg aggcttatct ggggagtaca aagcatgtca 41820
agaaaatgtg ccttcatttc cttagatgag tgtccccatc ctccactctc ctccactgtt 41880
ctcctctctg cttctatgat atcaactttt ttttttttct ttagattcca catgagtgag 41940
atcatgtggt tgtttgcctt tctgtttctg gcttatttaa ctgaacaaga aagtttttga 42000
catgaaatta aacttctgct tgtaaactca attcaaacta tttacactgt cttctcaaaa 42060
atgttaactt attttaataa atctactgaa tgaccgtatc tcattttgtt ttatgaaaag 42120
aaattgtaag ggtgctcaat agcctcttca ttttcatact gtctagctcc tgtgctccta 42180
ttaaaattac tgcaaattta gctttttaag aacccttttgt ttcactacct gaagttctat 42240
aaaaagatcc aagttccttc acaaccgttt cttatgctgt tattcgtaca tatgtgataa 42300
taccacgtct gaacacgtag ataataagta ggggctgggt gcggtggatc atgcctataa 42360
tcccagcact ttgggaggct aaggcaggtg gatcacctga ggttaggagt tcaagaccgg 42420
cctggccaac atgatgaaac cctgtttcta ctaaaaatac aaaaaataat aataataata 42480
attagccagg tgtggttgtg ggcacctgta atcccagcta ctcgggagac tgaagcagga 42540
gaatagcttg aactcaggag gcggaggttg ctgtgagctg agattgtgcc attgcattcc 42600
agcctgaaca acaagaatga aactccatct caaataaata ataaataga agtatgtatt 42660
gtgttgctta gaaggtgtgg tggaaattaa cttgctgagt gagatcaaag gattggcact 42720
gaattgaaat aaagaaatat tcatgctgag tctggttcaa atataactgc acctgtaaga 42780
attgctttct gtaaactttc catagtataa accaaatcca aatcactcat ggctttacat 42840
tcctgatcgt taaacttgaa gcacttttta atactgcatg actttagcca aaatatctta 42900
gccaagattc aatgtttggt tgaaccacac tcacttggac atcttggtgg cttttgtttc 42960
ttctgaccac tcagttatct atggcatgtg tagatacagg tgtatggaag ccgatggcta 43020
gtggaagtgg aatgatttta agtcactgtt attctaccac cctttaatct gttgttgctc 43080
tttatttgta ccagtggctg agaagaccaa agagcaagtg acaaatgttg gaggagcagt 43140
ggtgacgggt gtgacagcag tagcccagaa gacagtggag ggagcaggga gcattgcagc 43200
agccactggc tttgtcaaaa aggaccagtt gggcaaggta tggctgtgta cgttttgtgt 43260
tacatttata agctggtgag attacggttc attttcatgt gaggcctgga ggcaggagca 43320
agatacttac tgtggggaac ggctacctga ccctcccctt gtgaaaaagt gctaccttta 43380
tattggtctt gcttgtttca ggcattaacc cagataaatg ccatgcaaat tttataatta 43440
ttatgattgt ttcaatttct ggaagaaagt taatgaaaca aaaaatgtag taaaatgcca 43500
aaggaacagt gacatttcag aaagaatgag ggctttcatg ttaattgtaa gtcttggaat 43560
ttctcttcct tggagtaaca aatccctttg tgcctaattt cctaatttcc aaaataaagt 43620

tcttttactt atttctttat agtgacatca tctcttatta aatggcatat ctgcatatta 43680
cataacagtt cattgccaaa tacatatttg tgggaaatga gagacttaaa atacatacca 43740
accagagata tagttttgag gtagatttta aaattctgag aagaattttg actgaatttt 43800
tttgacaaac atgggacacg aataagatta taccaaagat attataactt tcattttaaa 43860
tatggaacta atacagtatg aggtgtcaac aacgttgaag tttcacaaac atcaccacaa 43920
cagcaaaata atttttgctt tttccctgcc acaatgacct ccttgctatt tcttgaataa 43980
atcaagcata cccttgccct gacacgttct tggggaggcc tgccctaatc tatataaaat 44040
tggagccatt cttctcacct ctggtattcc cagtctccct actttttttc cttctttctt 44100
tctttttctt tttctttctt tctttccttc tttctctctt ttctttcttt ctttactttc 44160
tttcctttct ttcttttccc ttccttcctt ccttcttccc ttccttcctt tctccctttc 44220
tttctttctc ttttttcttt cttgcttcct tccttccttc tttccttttc tttcttttcc 44280
cttccttcct ccctctctcc ctcccttcct tcctcccttt ctttctttct ctttttcttt 44340
tcttgcttcc ttccttcctt ctttcctttt ctttcttttt cctttctttg ccaaagtgtt 44400
attcaccttt aaatataata cataatgtgc ttactttaat gtatgatttt tattttattt 44460
ctcccttcta gaatgtaggc accatgagag tgaaatatat ttattttgtt cattgatatt 44520
tcacaagtgt ctgggagagt ttccaactta cagtagacaa ttaacaaaca tttattaaat 44580
taaggaggga aggaagtgag taagcacaac aactttcatt tctgggtctt ttataatcat 44640
atgcttagta taagaacagt gctattcagc tatccaaaag ttacaatcaa aatgattttg 44700
gatgaatatc ttgaaaattg tgagaaagaa gttttatttg ctggcaaact attctgggtt 44760
gtttccactt catgtaatcc taagtagcag ccttaccttg atagcccatt aaaactctga 44820
taataaaaag gcagaacaaa aatatctgtg atatatttag atttactaca tgtacttaca 44880
tgtctagtgt ctggtgcaat ggatgctaat gatggcaaat ccttactggg cttctagtga 44940
agttcttcag ctaatgcttg aatgcatggt tggtcatggt ggtacccctt tgtacaaaat 45000
atgcttttca aataatctta ttagggataa taattatatt aattcctggt ttccatctaa 45060
aattttaatt ctatttatag cttcgtaaga tttcacaagt taagagggac ctcagattaa 45120
attagtacac aggcaattaa tcagttttgt gtctccgacc cttttcacgg gctaatagaa 45180
gctatagacc ctcttagctt cagaaaaatg tgcactcaca tacgcacatc aaagagctta 45240
atgggaagtc cattgacaga ccctctgttc agatcaatct tctgattgta gagatgagga 45300
aacagaaatc tacagaggaa gtgggtagtc caagattgca cagtcatttg gaatagactg 45360
gacaccagta gtacttttcc agccactata tcacttcccc aagcacttcc tcaaaactta 45420
ccttcctttg ggtctttata cattcagtta tggacaacta gatttaacta gaggatttta 45480
ttgcttcaga atattaagca acagggaaac atgtaccgtc ttttattcac ctgcatttaa 45540
ggcatacaat ataaattgca aatggagcat gaaagtgctt aatcttttac aaaactgggt 45600

ttgctttcca cccatctaaa aatacttcta tttattttaa tatttaaagc agaaatctaa 45660
gtgatgtgac aaaattaatc atttggagat atttccctta taggtagtat agtttcttac 45720
tgatttctaa tatgaaaatg aagccataga acctagaaat tgcagcatag ttgtggaaat 45780
aaacattgga ctgagagtga aaatggctag tcttcctctc tgctcataca ccacctgact 45840
ggataacctt ttgcagatct cctaaaagtc tttctcataa aatgaggaag ctctactaga 45900
aaattgttga agtctaattt agcaataaag ttctgagttt ctataataat tcaaagaata 45960
ctctaataaa tgtctgcaat tgtggtcaca tctatgggat gctaaaaaat ctggatggtt 46020
tcaatgaaag tatttaattt gttcattatg aactttgaaa taatttattt catttttaa 46080
actttgatca aaatgaccct ggtaaataga ataagcaaa ctcttttgc ttgaaatgct 46140
tattaatgac tgcattgaga cactcattca tcattcaaga aagaatgttt gctcacactg 46200
tgccagaaac ttggaggaag agggatgtga caagtagggg tactggatgt ctagcttgta 46260
gaagtggatt aatggctctg cttttaagat caggaacact gaaagggagt aatggcaccg 46320
gttttcacct ttcatgccct ttgagggtat ctggtccatc accctctagt tgatgaggga 46380
gggaaagttc cctctccctt cacaaatagg tggaaattaa atgacataat tctgaacaac 46440
caataaatcg agagtaaatc aaagcagata cctgttttgt taatttgatc atatgaatgt 46500
agctgccctt agtaataatt tctaagtata agactagtta aaggacaaat gagttatctt 46560
gaattataag attttgtttt acagaacaat attaactctt gtgtttagta cattagaata 46620
atagatattt tgatccatat ttttactcat gtgcacataa gaagttatca gtcatacaat 46680
tcatttcttg aagttcatac ctttcattgg cagagtagaa acaggttaaa agtgcactgg 46740
cagaaatttt aagtgcaaag caacagtgat gttatataga gaaaatttat atttcctact 46800
tctattgaag aagaaagatc tgcttgttct aagaatattg tacaaagaaa gtgacttgaa 46860
tcagcgttat tctgtaatgc tactatgcgt gcagtgtgga gtagccacta gaacacttgg 46920
tctatcccag ctcctcaaca gtgtcttgct tgtggctggt gctcaaataa atccttgctg 46980
aactaatgag catctctttc atgccacatg gaatgctcta aaagagttgg atcctgaagt 47040
ttttatattt ttgtaatttt ctggagtgtt agagagcaaa agtcctgaat aaactgtgaa 47100
gccactgcct gacaaataat acagcagtca gcttcgttat catatcccat tgagacacga 47160
cttatctaca tgatgattaa tagttttcac gcaagaaata agcttgaaat gtctgttgcc 47220
ttgggtactt aaaacatcca ggttcagcga tgttatttat tgttgttcaa aatcagaatg 47280
aagttcctaa gcaatgccat tttggaaaaa ttacatcaat atattatgaa caacttttt 47340
taaatcttga tttcaaatgg attgacacgt gtatattctg taataatcct gacttaattc 47400
ataaaaggat agctagccag ttgtgtgcta gatgaataaa aaaaaagcag gttttaaaat 47460
gtcaggtttg acatcgtgaa tataatatct aagtatcctt ttactcattt cctttgactt 47520
actatggctg tcatgttggg cttcatgaaa atttattttt aaacacttga gtgttatgga 47580
ccctctgatt aaatgattaa tcagatgatg tatgttgcca tcagctgaat catttaatgt 47640

tgatttcaca aacaagcaca ggtcacaggc aacatttcag atttctttga agaagcacac 47700
acaggtcaca ggcataatct taaaataatt ttataacaag gtagtaataa gagatgtcag 47760
gactggagaa atattttaat ttatagtaag ctttcccctt aagtgtctaa taattgttaa 47820
tataatacat tgcctcaaat aattaaaagt ttggttcttg tccttgtgct tgacttcaga 47880
agataaccag atgactatta ggtatattta gacctaaatt aaaagctttg agacacaatg 47940
aattgcctga tttgtatttg tgtttcgagt ggcatatact attactggca ctataatctt 48000
agattaaagc atactgtgat tattaaagaa aaatttaaga ttgatttgtt tctaaaggta 48060
tgtaacagtg acattttgca atgtggtatg taaaagttgg tatttctcac tcatatgaga 48120
gcccactaat ggtacataaa ctgtccccac ttagaaacac aattattatg gcctttcttt 48180
gtatctgaca aaatttcact gggttcaaga tggatgaata gtgaattcta atgacccttа 48240
atcctgtaag gttctaggtg ggaaagtact ctgtaattat gtataaaatt ataaggaaaa 48300
taggcttact gctatgtttt cattaaaaat cattaactga gtacttaata tgtgccagac 48360
actcagctgg gcaccatgag aaatacaaaa ctgagtaaca tatgggtggc tcctgccttc 48420
aagaaatggg cagttcaggc cgggagactg acatatttac cctgggaaaa agggagcagc 48480
tgtggtctct gagaacaata tggtttgtta caagtatata tccatcatgg aaaaaaagag 48540
atttatctta gaaatgagag aggctgatgc tctcaataaa tatcatacat taaattgtgt 48600
ttttgtcagt agactgaaat tacctcacat acacgcacag atagtagcca tgatatttta 48660
gctgcttaga tatagagaca aatacttcca cccaaatctt aggatcagtg gttaatagtc 48720
tgtaagcatt acaatcccac aacatatgca tgactataca tccaatttta atattcaaag 48780
aactgattgc gatgatagtt ttgtttgtca aagaaatgta ttataggatg agtgggatag 48840
aactgcatca cgttacacca acaaataggt ttaaatcata tttgtgcact tcccttgttc 48900
cttcataaat gtttaacata gcttaaaatt ctgtggactg caacgtgaga gcaatgacca 48960
cacttctgtg aacccatttt tactgtgcat gtgctaacgt ctattgttag tattccttca 49020
cttgcaaaga tggcatgata attttgctgg tttcattaat gagatactgt taaatgtagg 49080
atgacttcaa acttagttgt attgtaaaat tatttttaat tgtatacatt taagttgtac 49140
agcatgatgt tttgagatac ttatctttat ttatatatat atataatata cacacgtata 49200
taaaagtgat tcctacattg aagcaaatta acatacccat catcatatgg ttatctttgc 49260
ttttttacta tcagtgccta aaatctactt tcttgaaaaa ttaccagtat gcactacaat 49320
attattaaca ataatcttca tgttgtacat tagatcttta gacttactca tcttacatga 49380
cttaggtttg tttttacctc tactaccatc tgagccatat ttccactttg taatttgata 49440
ataaacttgg aaaaatagca cttatatgtt taggtgacgg gcataaatag gataagatgt 49500
gtttatatat tattccatat atcttgtctc caactacaat gataaacaac ctgtttgtcc 49560
ctaaaaagta agaaataact tgacttttct gccccttcaa gcataggctg ttagctttta 49620

agttttaggg agacattgat gatgctattt gctttatcaa gaggaaattg tcaaaagagg 49680
tcttttggtt ctcaaactat tcaaagtatt taaaaatcag gacaaaatat gtttacgtga 49740
tattcaaggg tacagaaatg aggtaaatga gatgccaatt gtatttgtca tgcaaatata 49800
taattatgtg tatgagagtt agatgataca tctcatcaat ttaattgttc ttctacaagg 49860
agaaaatgaa caatttgtca actcgtatat gaagtaattt ttataagaaa ttttattaaa 49920
acttttaaca acatttggat ttttaagttg caatttaaat atccccttct accaggtgat 49980
tctggaatca ctaagcagtt acctgtgaaa attccaaagt agcatttaat tcttattaat 50040
gtcatagtga acactaatgc aaagaatact gagccagaaa ttatgcttgt tgaataaata 50100
gattatttat tgaacaagta agtgaaaaaa tggaaataaa gaacagatat atattttatc 50160
ttcctgctta gatgtgggac tgtcctactt ttctctggtg ttcacaacaa caatatgata 50220
aatctaattg gaattcagtt cataggaatg aattcagtta cattatggat tgtgatgaat 50280
aatgtacact tttaatttaa tgaaatcaaa tagattttaa ctatctatgc ttacaatggg 50340
gtgacataag tctgacaatc cttaatatca agtcatctcc aattcacatg tatacacact 50400
ttttttctat ttggctattg ggaatcctca caaaaatcga aaattgccct ttcagtgtac 50460
gttacggtat ttcatgccac acagattttc tgaggttgta catacagctt tgccttgagg 50520
ttccaatttt tgctcagtgg attgagtata tattatttgc tatatatcag aagaggcatg 50580
tgcttcctac ttatgtcacg taactttggg attaatgtaa ttgtcctaca aagcatagat 50640
agatagaaat acttcatcct taatttctaa tattatgaca tatctaaagt aggcaccttt 50700
aaaagataat ctccactaaa tacgaatgac tgcttatagt ggcaattcat ctttcatggt 50760
agtcctccta caaaggtata ctaacattta tgagtttgaa acaaaggcaa ttcacaagtg 50820
ttctgctaga gatggtctat atctgctgtt tgatccagca tgatggccag ctggccctcc 50880
tgtgcatgac ggctcgtggt ttaactgcac cattttgttt ggtcatatac agggaaaaca 50940
tggcatggtg tggagggcat gggcttgaat tcagggaaca gagagttggt cttctctctc 51000
tcactctact ggatgatgtc atctcccctc tctaagcatg agttttctta tctgtgaaat 51060
aaaaatgttg aattaaatga gttcaaaatg ctttcagtct gtgtttaata gcttgaatct 51120
taagacaatg tattcaatta tgcgttgcca gatccctggc aactcatgta acctttctaa 51180
accatagcta ctcatctgta actggccagc caactgccca gggttggagt gtgaatgaaa 51240
taagataatg cagacaaaag atttttaaaa attgtagtgc attatacagt tgtaatattt 51300
tgccaagaac ttacattttc tctaagaagt gtgtcgatac atgatcacag aaaatctttt 51360
ccatattcct ttgtagtttg atgatattaa gtaagtaaat tgtataacac aaagagggaa 51420
aagcatcact gaacatgccg ttttatttag ctaaataaaa tgtaatcact attagttttc 51480
ctctgatttc cccaaagtca tgtgattcca ttgagtatta tgcacatggt ataattagaa 51540
tggattctct gctcaaataa ttttgggaaa catttaaatt aacaaagttt aaaagtatct 51600
ctgttaagct gaagcaaatc tcaaaggcct taatattgta tgtaagagga atagttacca 51660

tctttcctaa tgcctctttg acgccaaacc catggagaat agttctaggt gttcagtaaa 51720
acacagattt gggatgccac aggttaattg gaactgtccc ctgcaatctt tttctctttt 51780
tcttaataat ggctgattgc aggtcctaga tgaaagacat ttagagagat tatcaggact 51840
cagcatccca tatcagaatc cattctttta tagtcatttt ctgttacatt tcttgggaca 51900
acaccaaaga aatgaccatc ttcattcaca taggctttgt accaaatgct gacaaagatc 51960
cttggtgacc tagatggggg caggtctaag tagattgcag ctgtaaaatt ggctgatgaa 52020
tgatctcagc ccctttttact cacactcaaa ggcaggacag tccattaagg ggaaggaggg 52080
cagagttttt ccttaggcca attccctatg ccagaacttt ttagaatgga agcatttcca 52140
gaggagaaac aaccccaagc acagttcaaa gccccctcct cccaagttca tttgaaagtg 52200
ggatggttta tctgcaaagg gggaaaagat gagggatagg gacgggaata tccctaccct 52260
tcagagagtc tggtttcatc ctgcactttt actgcacagc cacaaatgcc ttggggtgaa 52320
tctacaatat gatacatcat atggtctaaa cgtgcctggc tgatcctctc taatacttca 52380
ggggtctaaa agggataaca tgctctcctg ttactcaccg actctgtccg ccatatttca 52440
cccagccagc cactgccttc acttccgtcc gaggcctaat ctgagcccat gggaaaccta 52500
agaaccccta ccacaactgc ctcaactctt gggaatcagg gtgtatgggg gtgacaggaa 52560
gtgagcatac attctccaac ttgatatgtc agcccccacg tctgtatgaa tgtttgctca 52620
cactgtgact gccggccttg ctcctcaggc tgcatcctac cagggagtaa gacccaagtc 52680
cttcctgctt tcagacaaca ccaagcctca tgagtcccca ctcagaggaa ggaccagaga 52740
caaactctaa tgttccacta atacttccct tcttattact ttccttgaaa atccccttctc 52800
cctctttctt tttatacttc gctaatgaaa ggtaatgaaa gggtctggca cttggaattt 52860
agaattgata catggttttt aacccgcgga cgtattccac aataaccctt gcatcttcta 52920
ctaagatgtg ggctaggaag ggaccagcca gttcccaggg tcacagtgcc tcagctgatg 52980
tttcatattt tcagcaactt tatgttagag atgtccatca atcagaacaa tatggttaga 53040
gaataaacta ataaaagtca cttttgagga catgttggaa gtctatcaaa agcattgaaa 53100
ttatgcatgc tctgaccagt cgcatgtcta agaatttaaa tatgatcata agtttaaata 53160
tgaagatgtt tatcacagaa ttgattataa aacaaaattg aaaaaaatag tgctagaagt 53220
ttgatcatag ggacctcatt aaatgcatta tggttgatcc atgcagtggt ttgctgaaca 53280
gccattaaaa tgttgtagaa taattattaa tggtgtggaa ggatgctatt gttgcagtat 53340
gtgaaaagaa caaattacaa agcagtttgt gcagcataat atttttattt tttaaaaacc 53400
tgtatgtggc ttatgtacat ataaagacgt ggaataaatg cacaaggtac tcagtttttc 53460
tcagtgaagc ccattttgca ttttgggctg ggtaattctt cgctgtggag aactctcatt 53520
cattgtagga tgtttacaag ccctgggcct tacctcttta acgccagtag gcacccccag 53580
catggcaaca agcacaaaat ggtctctctc atattgccct tgaggaaatt ttgcaactaa 53640

gtaactatta ctgggtccta gattacagtc tggattattg cgttcctttc ttatttttat 53700

tttctccaat tccctttaat aagcatgtac tggattcata aaaaaacaac ataaatggta 53760

attacaatat tccgcactgg ttaaaactta tgtaaataag cattctgctg ctttagccac 53820

aattgcaatt tatgctcctt ctctttctta agttcccagt tcccacgtac attcattcga 53880

ctgattcaaa agtcatttta gcttgataga ctcttaaaag ttagagttat catttctgct 53940

atttattctt tcaattatcc atttgtccac ccatccatct gatccatttt gttgatgcat 54000

gctgtgtata aaatactaca ccagcctggt gcggtggctc acgcctgtaa ttccaggact 54060

ttgggaggcc aaggcgggtg gatcacctga agtcaggtgt ttgagaccag cctggccaac 54120

gtggaaaaac cctgtctcta ctaaaaatac aaaaattagc caggcatggt ggcagacgac 54180

tctaatccca gctacttagg aggctgaacc aggagaatcg ctcgaaccca ggagatggag 54240

tttgcagtga gctgagatca tgccaataca ctccagcctg ggtgacagag caagactccg 54300

tctcaaaaac aaacaaaaaa aatacaatgc caagcatcat aaaaaatata gtgatatata 54360

agacctattt gttgtgctct aggcattgac atctagctgt caaccattaa tatgtgtagg 54420

agtctatcta tcaatattat ggactgtgct tgaagacttc ttccccaatc tttttctctt 54480

cccattaagt ttgaagtgag gttttctgag tgaagtatca tagtacatac agtctcatta 54540

tttttcaaaa atctctggtt atagtacatt tctttccttt atccccttttg ttcccaacta 54600

tcaaaccatt ttggatatcc agtattggta tccagtatta ttaaaaagca aaacagagaa 54660

ctattaacaa aaaaatttgt aggagtaatt ggttgtatgg tatccagtac tattagatag 54720

taaatcagaa aattattaac aaaaatttta gacgaataat ggattgtctt gcccaagtga 54780

attgagtgat ttagttgttc tttcattttt agcaagtaca gctgatcatt tgaggcctta 54840

ctcattgttt gattttgcaa attcttacta ttataaatgt tttgggctct gagaaagctg 54900

ttgtcttaat ctgtttgtgc tgttataaca aaatacatga gactgggtaa tttacaaaca 54960

acagaaattt atttctcata gctctggagg ctgggaactc caagatcaag gcatttgtct 55020

tcaggttcag tatctggcga gggccggttc tctactccca agatggtgtc ttgtcactgt 55080

atcctccaga gggccaaatg ctgtgttctc acatggtaga gagatagaaa gggccaactc 55140

actccctcaa ggcctttcat aatgttacca attccacttg tcagggctct gcccccgtga 55200

ctttattacc tctgcaaggc cccaccactt aatactatca cgttggttat tacgatttat 55260

cacatgaatt tcgaccatac tagttgccat cctttcattt tcatatatcc ttaaaacttt 55320

gcctttctca ttttaatgta ctttatccac agtatgccaa cttttcgata cttttgttaa 55380

cctgtctgac gatatatagg aaactgtaaa agtgcagttt ttgatacact ctttagctgc 55440

ccgtttactt ctactgtcgt tagagaaccc catccatagt gcatgtgttt attttgtgta 55500

tgaacaaaga ctttatatat agtttgggtc atttttattc attagtgctt cccttataat 55560

ctctgaatac cattttatta gtacatactg ctattcttaa tagtaactag catgcctgat 55620

catcccaaat gtctaggttc acattttaaa ataagttata tctttgggct taacagttta 55680

ttgaaaggta acaaggattg agtcatagtt gtatgttttt ggaagtagaa ttcaactgta 55740
aatagaaatt ggttgtttag atctcactat atatgaaaaa atgaaggctt taggagaaaa 55800
tctccccaaa gtacccattt ttcatgtgat aaatatcatg aaatgatttg agaaaaaaat 55860
gtatatttgt tacagctaac aaatatttgt gtttttttatt cttcatggag agaatgaaat 55920
ttcttctctt ctttacacat ttctttttct tattagaaac taattggtgc ctttataaaa 55980
attaactgca gagcactaac gtgtatatat aagtattatg tagggtgtag ggtatgttca 56040
gggtatggtg tgtgtgtgtg tgtgtgtgtg tgtgtgtgtg tgtagctgtg tgtgtatata 56100
atgaaatata tggtagtgtt gtttcagaaa tctgcttggt cttcccagag ttcattcatc 56160
ttataaattc atctacattg atctctattt ttggaatcca tgaaatgttt tttggcagta 56220
cttcctttaa tatagtgtgc tggaaatctg gaaatttcta gccagattag ttacaaaaaa 56280
ttagccagtg gttttgcact ctctatagaa tcaaggccca aggcctactc ttgttactca 56340
gggccttgtt ttatctggcc tctttctttt cagccatata gctctcaaat actcaacaaa 56400
attcttcatt ctaggtagac aagtatcttc aaaatacttc ccaattatct aataactgtc 56460
ttaccactaa gaaggctttt atgtctcctg tctgaatttt atccatgcaa aaaagtccag 56520
cccaagcctc cagaactcca aaaagttatc cctaactgct gaaacacagt aatttcacta 56580
tgtgaaattt cactttggtc tcctagcatt tgcagatata ccatacatat ccttgatcct 56640
tttcctttca taccttttat atctaaccct taagctaata attttaccta cactgtaatt 56700
caaaatgtat ccccagtctt accatgtctc ccttctctac tgttaccacc ctaggctagg 56760
ccttcatcat ttctcacctg gactccttcc ctaacctctg aactgatctg cctgcttcca 56820
cttagacacc caacctagtc cattcttgag cagtcggaat aattctttta agaaagaaac 56880
cagatcacat ccccctctgc tcccaaccat ccagtgacct cttatcatac atagaatgaa 56940
atgcaaatct ttactgtgtt ttaaaggccc tacattatct ggccctcagt aacttcttac 57000
ttcctatccc ttttctcctt gtatgccacc ctccaactac actctaacta cactgtcttt 57060
ttccctgttc ttcagacctg ccaaccatat tttcactgct caattaatat gtagaaaatg 57120
aattgttcgt taaatgtaga ctgtttcctt cttaaagcaa agataaatga cattgtcttc 57180
aaaaacaact aactgcccag aattcctgat tttaatttta aaaagacaaa ctgcaagaat 57240
gtgttaaaca gtaaggaaac aattcactac ttcagaattc tatatgattt cactgcacgt 57300
tagtaatttt gtatattata gaatatgagg gtattctaat aaacttaact ctatgctgta 57360
tacttatcat gatagctcat tttcttatat gtttataaca gcactactta ttgtacatgg 57420
atacgtggga aataaattaa ttttctcctt aagaacaaag caaccatttc actcatgaga 57480
taaatcttga agatttaaaa actacttata attaattata cattattcat ataatgttaa 57540
gtattttctt agtaaaccac ataatttaga atggcaattg gacagatggg cagaaccaca 57600
tgcatccact attaggcagt tggtgagcat aagatgccag aaagaagatt aggaatatca 57660

aggcagggag cttccgatcg ctcttgaaaa cattgaccct tcactcctca ctctccacga 57720

tgcatttcct ttgaaaagta atgccttcca aaacaaagtt ctctgtttta tatctaaact 57780

tactcaatag tttctcatgg ttattgatat ataaaaaata aagtaaaatg tttaggcaga 57840

ccaaaagaag aatttccccc tccctctgcc ttttatgcca aggtgacagc tatgaaatgt 57900

acagtacgtt tcctctgcaa ggaatgtagc agtgttccat tgcaagaaga tgagagggag 57960

agaaaggttg cacgctgagg aatatagtgt catttgtcac tgcctagact catcagctgt 58020

gtggaactct gagaggcacc aggcttcttt atttatttct tcagaaactt cagcaaaaaa 58080

gatttcatta ggagcagaga aaaatgtgaa aaacgaatta gcttttgtga tggggagtag 58140

tcatctctga atattgatca agattaagag ggttgtcttc gtaacttctt ttatccatag 58200

tctatactga tttaactaga aaactaattt caggtggtat ttcgggtgtg gcagatcttt 58260

atagtaaatg aagaatctag tcaaatctac tgaaaaactc tgcttacttt aatgtttgat 58320

ctggttgaaa ccattttagc ttaacaatcc ttcctctgaa acagggaatc aattgatatc 58380

ctacagcaaa attatgtgga agggccatta gcttcacatc caatgcaaat tttgcctgtg 58440

tttactcttc cccaatccaa aatatatcag atcctagatg ccagtgaaat cgtttgagct 58500

agatggcttg agggtcatag ctttttttcat ttcctgttct cagacctctt ataattgata 58560

gaataaaatc agaagagccc tagagctgtc ccacctattc tgcctcacaa aagtagaagt 58620

aatggcaacc actatcatag ggatcatgct caccttttttc ttaccagaca aatttggata 58680

ttagcttgaa attaatacct tccttaaaat gttggaattt ggttatatgc gaaattttgc 58740

tctatttatt cattatattt tgtatggaat tatttttgcc ctatattttc acttaagtgt 58800

tctctaccca agattttaat tgaacccaaa tcagccagac acacagacat ggattttgct 58860

gccaccaagg ttaattcttc ttttaaagtt aacttttaaa atttggtaaa atatagcttt 58920

gaaaatttgc attcgtctag tgtttgttat gtatttcccc cttttgtttg attatatgtc 58980

tatatttttc ttgtagaaat tgatttttaa cctgcttttt atgttagctt ttatgagctt 59040

ctgtctgaat tctgaatatg tctttcttaa tgtcttctaa atgtttcttt ctggattatt 59100

aaaagattta ttaggctttt aataattata tttgttacct tagggaatgt gtttgaaaat 59160

attttaaatg gaattgccag ttaacacagc attgaacttt ttcttgttag agatacattg 59220

ttttctaggc attttattgg gagagaagtt agtatgatat aatgtctttg gctgatatta 59280

actcttctaa gatgcattgt ttctgagaac accattgtct gatttcattc agggaaattt 59340

cacacaagcc agtagagtca atacttttttt caagacctgt taattgatat atataaaaac 59400

ttgccattgt ttacatgccc atttcagatc ctttatgtga cctaagctag aaatgcattt 59460

taacagcatt tgtttttcca aaaatattta tttatttatt tattatagag acagcgtctc 59520

tctatgttgc ccaggctggc ctcgaactcc tgggctcaag caattctcct gcctcggcct 59580

cccaacagtg ctgggataca ggtgtgagcc attgtgccag gcccttgttt ttatttttttt 59640

taaacattgt attttgaaag gggtttgaag gtgatcccta gatagcaacc agtaatgatt 59700

cgagcagcaa aacaatctaa aaagtaattt tataagaaaa tgcagaacat aaatgagccc 59760
ataaaaaatt atattaggtt ctatttacat tactaccttc tttcacatgt aatatttcac 59820
taacatttaa tgaatttctg tgcagtgcca tataccatta tgaattctag gatagaagaa 59880
tgagtgagaa atgttcttag gccttaggaa gaaggaacaa gcatctctgt gtaatagtta 59940
tttcaactct tcttttacac ctcattccca tattaaatct cagaaaagct aaagtaatag 60000
ctatcccaga tctattttag actccagaca cttacttcaa tgtcttgttc tccttatcag 60060
actggaatca ttccaaacct cttaacttct gggcaaccat gataatgcga cagaaaggac 60120
actaaatctg tcgcaaattt atcttgatat tctatccagt cttacttggt actgaaggtc 60180
acaagtaaaa taaggtggtt gtttttttgtt tgttttttttt ttttttttga cagaagagaa 60240
aagaacactg tgagcacaga gtgaatgtct aacattgatt cttgagtagc aggaattctc 60300
tatgcgagag gatctctatg caaaaagatc tcatattcta gcacaattta aggatctcta 60360
tgcaaagata tcccatattt tagcattatc aataagctat ggggtaatat attgtatgtg 60420
gtgtggcttg aattctagaa atttgatttc tagaaatggt ccctgtagtt aaggatatat 60480
aatgtggccg tctccagttt tctatgagga ataggaaaat actatcatta ttagctgtgt 60540
gaccatggac aacttgcttc gttcttcagt tgcatcatct gtataaaata agaataagaa 60600
aatttacatc tgcaaggtgt gatggagatc acatgggata attgtggtcc cagagcctgg 60660
cacaaaaggg cttaatattt ataatcctcc ccatttctcc gtatactcta aaggaagttt 60720
attgcttatc aaattgtgcc gtggttagtt gtacagcttc cctgccaaat tgtaaactcc 60780
aacactaatg tgacgttaca ttttatatag tgctatgatt ttcaaattgt ttgcataatt 60840
tcaaatacac agtaaattgc tttttattag tataattatt gctattgtca atattattat 60900
tacaacagct tcacagtaag atgggcagaa aaaaatttaa tttccatttt acaaatgcac 60960
ttttgaggct cacagaagtc aaatagacca aagtcacagg gctagtgagg gacccagaag 61020
aaacaaattg taattcactg attccaagtt cagtggttgc cttactgcat cataaaggct 61080
attacacaat ccaggtgtat catatgattc ttgtctatat attcatacat atcagaaaaa 61140
gtgttctact caaaattgct agcaatcaac agatactgat agtcattagt acttaaatct 61200
ttatcaaatg aaatattaat acccatgaaa gagaggacaa tgaaaggttt gtatcatttg 61260
tatgtcacaa gtcaactttt ttcaatcact cattattagt ttaactgtaa aaaattattt 61320
acatttagcg tgaaactttc ctgtattctc aacatatttc cttcggtaga aaagcaaacc 61380
tccagttctc tgttctttgc ttggatactt gccagtttgt aactcagcta tcaaacagta 61440
aagctcacaa aacacttatt aaaatgacta aaatccaaaa caccaagagc acagcatgct 61500
ggtgagatgt ggagcaacaa gaactttcat tcattcacta atgctggcaa tacaaaatgg 61560
tacagtaact ttggaagata ggttgacaat ttcttacgaa gctaaactat acttaacata 61620
tatatttgtc cattttcaca gtgctaaaaa gaagttcccg agactgggaa atttataaag 61680

gaaagaggtt tatttaattg actcacagct cagcatggct gaggaggcct cagaaagctt 61740
ataatcatgg tggaaggaga aggggaagca aggcacctac ttcacaaggt gacaggaagg 61800
agaatgaatg caggaggaac taccaaacac ataaaaccat tagctctcgt gagaactcac 61860
tcgttatcat gagaacagca tgggggaaac agctctcatg atctagttac ctccacctgg 61920
tctctccctt gacatgtggg gattatgggg attataattc aagatgagat ttgggtgggg 61980
acacaaagcc taaccatatc accatatgat ccaaaatcat gctacatgat attcacccaa 62040
aggaaatgta aactgtgtcc acaccaaaac ctgcacatgc acgtttatag cagctttatt 62100
cataattgcc aaaacttgga agcaaccaag atgttcctca ataggtgaat gaacaaaaag 62160
actggcacat gtactcaatg gaatattatt cagtgataaa aagaaatgag ctatcaagcc 62220
acaaaaacac atggagaaaa cttaggtacg taagccagtt tgaaaggttg cattctatat 62280
gattccaata tatgacattc tgaaagagac aaaattctgg agacagtaaa aagatcagtg 62340
attgcctggg gctctgagaa agtgcagagg gatgaatggg tgaagcacat ggcatgttta 62400
ggacagtgaa actattctct atgatactgt catggtggat acatgacctt atacctttgt 62460
taaaactcag aattttacaa tacagagtga attctaatat aaactatgga ctttagttgt 62520
aataaggtat caatgttatt tcataagttt taataatgta ccacactaat gcaaaattat 62580
aataataggg gaattggggg aagggtaatg gagtatatgg gaatgcactg taatctcagt 62640
acaattattc cacaaaccta aaacttcttt caaaaataca agctattggt caggtgtgat 62700
ggcttatacc agtaatctca gcactttggg aagtcaagac cctcagatca cttgaggcca 62760
ggagttcgag accagcctgg ccaacatggt gaaatcctgt ctctactaaa aatacaaaaa 62820
aaaaaaaaga aagaaagaaa agaaagaaag aacagaagaa atgaaagaaa ggaaagaaag 62880
aaagaagaaa agaaagaaag agaaagagag aaagaaagaa ggaaagaaag aaacagaaag 62940
agagaaagaa agaaagaaaa agaaagaaag aaagaaagaa agaaaagaaa gatgcggttg 63000
ctcatgcttg taatcacaac tactcgggag actgaggcat gagaatcgcc tgaactcaga 63060
aggtggaggt tgcagtaggg tgagattacg ccactgcact ccagcctggg tgacagagca 63120
aggctctgtc tcaaaaaaaa aaaaaaaaag ctattaaaaa tatgtaaagc tcagtctaga 63180
tacagtacca gaatagtagg aactttattt cacctgtcct acaaattatg gttgtgtgcc 63240
acttgggtaa aactcagaat ccaaatatgt gaatgtaaga tttatgggga aattatttgt 63300
atttcaaaat aatccttaat gaatgcactc cttctaaagt agccattaat aaagcagtta 63360
atgtttcatt taattataga ttaatgtaca taagatatgc caggaatgca attaggaact 63420
gggaaggggg tgttattcta ataacttcca catagcattg tgagacattt tctgctttct 63480
tcaaatttca tttaattaca ttttaaacaa atatttttgt gagcctatta tatagtcctt 63540
cgctagcact gaggagacat gctttgtgac cttggtgatt tcacattcaa atttcccttt 63600
cacctacact cttccttgtt ttttcatgcc tgtgtagatt gtaaattctt cctcagatta 63660
agacatttta ttcacctttg taacatccac agtatctagc acaatcagtg ccttcaaaaa 63720

caattggcct caagaattga ttgactcaat gagtgactga aagactaaat taataagtac 63780
acatctattt gtacttccct gcttacttat aaggtatgac aatgaaatac tgagacagtt 63840
atacattact tacggactca atctcatttc tttacaatct ctattcttct tttttgagta 63900
taatgttatt ttacaattcc actaacttgt cactctttat tataaattca tatctccatt 63960
tcacctgaga ataataaagg caaggaagta ttttaaatga tcttgttttt tataactagc 64020
attcattgag caaatcaaag tatgaaaata atataggtgt cagtgattat tataaagttg 64080
tatgcacaaa acattccaat gattggggcc aatacagaga aaacatctca atatttggaa 64140
ttttgctttt ctgtaaatac tttgatatgt acttacatca tatcaattat aactcctgct 64200
gaaaacaaac agtgcacaca aatttggtag ttggaggaga ctttataaag ggactaatta 64260
cgaaggttta gaccgggtta ggaaaaacac atggaatagt gcaatacttt aggatggcaa 64320
cagcgagcac cgttataacc actaggccaa aatgaactaa atgaacaggg agattaccat 64380
ttatcagaaa aagagggaga aaggaaggag agatgaccaa gcaagtccta tgtgaagacg 64440
gctgcctgac ttgagctgtg tgatctttgg actgatacca cctgcctgca ctggcctagc 64500
agggcgagaa tagtcaatat ctggaaaatg gatcacctga ccttactttc ctccctccct 64560
gtttcctctt tgtggtgttt ccactggcca aactcacagc gtagacaaaa ggagtgcatt 64620
gatgtagcag tggttctaat ccagggccaa ttgtgctccc agggaacatt agtggttatc 64680
acagctcagg ggaggaaggg agaggagtgg agtgctacta tgattcactg agggattttt 64740
ttaaacatct acaatgcaca ggacatcctt ccacaacaaa gtatccagtt aaaaaatgtc 64800
attactgcca aggttgaaaa accgtggtgt agtcagtaca attcatcttc tccaggcaca 64860
gtgcaggagt ggggtggagt gtctgaaggg gaagaaggaa gaaaccagca caccccacaa 64920
aagtaaccaa tgcaaatacc aaataggaaa agacagcact taaaatacaa aagtctcagg 64980
aatatatctg atagtgtttt atggaattta ttaaaattta gcctggagtg agtaatattt 65040
agcaagccag gtttgtcttt agagaaatcc ttgtggggtt tatacaacga tttattaaca 65100
aagggcacac acaatactca tattacagtc agtctggtta tgtaaaacat gggcaagaat 65160
gtaacaggac aatgtgatgt attcacaaag gattttagga ctacacagat aatcctctaa 65220
tgctttcact tacgtactat gaaaggctat agtttgcata gtgatatagc cacgtaagat 65280
agtaaacttg acattcatgc agctatacat gtttgcacac accaggatgc atgccctttc 65340
tacctggttg atttttttatt cttttattaa tctctaattt attccccaga acactctcca 65400
taaaaacttt ctcacaactt aaatctttaa tctattgtgt ggatttctga ctcattctcc 65460
aagcttttcc tcttccctcc gcaatgcctt atagtcttat gactatttat ccctttgcct 65520
acatttctag ccagatctct tgcctgatac acactctcat atttctcttt gcacgctaca 65580
cattttatt tagatatcac actactactt tgatttcaac aggtctcagt ttaacttaat 65640
ttttccttca agcaaggagt cccttcatat cagttatcac cattggcacc agaatttttc 65700

ttatgacttc ccatgaccta caatataaac catataaatc actgatgcct ccatagttcc 65760

ctccctctca aatttagcca taagatgatt ttaggatcct tgtttttcc aatctctctt 65820

tcattctctc ccccatctct tccattatga aggtttggat aggacacaac tcatgcctag 65880

attagtgcaa tagatgctga gcctgtgcag cggtagttta gctttctctc ctggttaact 65940

ttaactgcca catatatcac ttcacacgtc atttttcatt caaacgtatt taactggctc 66000

ttcattcata agaagctgga atttgtcgtt tgactgatat tttaaagatt ttatattttt 66060

tctccatcct cgttctaatg ttgtatcttg tgtcatttgt tcattcataa acttaagact 66120

tagctaacca ctgagcatcc aggaaattca gtatctatca tgtgaattct ctaatactgg 66180

ttgatccatt gtcaccagag catagcaggc ttctcctgcc tttatgtatg tttgtcatat 66240

agttcatgcc taaaattctt tcttaaatct taaattccta agatacacac ttttgcccaa 66300

gatcacagta atctctgcca taatctctgc tggaatctgt tcactgtgtt gctcctgctg 66360

aacttcttac agatgacttt ttttcttttt ggtttccctg gtatctagta taatttctta 66420

tataggtact caataaatgt ttcctgttga tctctacacc tactctgtac aataccatag 66480

tgactagaca catgttgcta tcaagcattt caaaagtagc tagcctgagt tgagatatag 66540

gggtaaaata cacaacagat ttcaagacat attatgaaaa aaacccataa aatttctcag 66600

taatttttt atagattaca tgtagaaact ataacatttt gaataagttg tatcaaataa 66660

aatataaaat tcacccggtt ctttttaatt tgttaaatgt ggtggctaga aaatttaaaa 66720

ttacataatt ggctcacaga ataattataa tggatggtat tgctttagat caagtttgtc 66780

taacccgtgg cccatgggcc acaagcggcc caggatggtt ttgaatgaga tccaacacaa 66840

atgtgtgaac ttccttaaaa cattatgaat tttttgtttg ttttgttttt gttttttttct 66900

catcagctat catgagtgtt agtgtatttt atgcatggct caagacaatt aattcttctt 66960

caaatatggc ccagggaagc caaaagactg gacaaccctg ctttagatag taaagcatat 67020

gagtagttaa tgtgtactat aagcagtgtg atctgataga ctatttaatg ttgtttgatg 67080

gtacattatt caagtcgatt attatgtcta cctatgcagt ttaacgacgg taatgagaga 67140

gggcagcttg attacaggtc ttatcttttg actaacttgc taggccacct gagaaggacc 67200

caaattatct gaatgcttaa ctcaactaat ttgtattcac ttgaagaatt tcaaggatgt 67260

ttatatgcca tcaacttgct ttaaattttt tctctcagtg aaaatttttc ttaaaatgag 67320

tatgtggtat tcaaatttat ccttgttttc tatgattatc ttttcatagc actgtggttt 67380

ccaggaacct ttttttttt gagatgcatt ctacatgtaa ctattgcaca gtttgcatgt 67440

agtaaggttc attattcttc tacttttcca aacacctggc atgtttactt gaggttggta 67500

caccttgtat cccagatttt gctgttttta acctaaatat tgaatatttt gattaaacat 67560

tatggaaagt ttaaatgggt caagaaaaat agcttttctt cccatgaaga acaatacggc 67620

ataggagtta agagcataga tttaaagtca gaaaacctgt gctgcctact tgtgcaaagt 67680

cacttacatg ctgtacttct gtttcttcat ctgtaagttc tacccctagg tatttactta 67740

agattaatgg aagcatatgt tcatacaatg acttgtacag aattattcac gatagcatta 67800
ctcttaatag ctctaactgg taacaacaca ataatcaatc aacaattgtg ctgtattcat 67860
acagcagaat actacttagc aacaaaaatg gaatggacta ctgataacct caacaacatg 67920
gatgaatctc aaaactatca tgctgtgtga tgccaggcac aaatcagtac atactataat 67980
tccagaaaag acaaatgtca tccatagtaa caacaagatc catgcttgct ggaggtagag 68040
gcatcagttc agtcattcag gaagctgatt ccaagatggt gttagaatta caaccatcca 68100
caagagattt attgcaggca atagctatga aaggtagaaa gagaacagga gaaaaaccag 68160
gcaaggaaaa accacaatgt agttgtgata tcacttcaaa gggaggcaga aggaaggaga 68220
attgggtagg aatagccaca gattacagtg cagttacaag aaagtcttgg cttccaacaa 68280
aggttacttg ttgaggagtc atgcattagg cagacatgtc tgggctgtag tttccttgct 68340
gctcccagtc attggctgga ggccagtctg ggttcctgtg ctgtggtgga tcccattgct 68400
gctgcagcag gaggccaata gcactcctgg cagctaattg gagagaaaag atccaagagg 68460
tgtaccttca tggctacccc catggggctg gggtggaggt ggaggagaag gagaaggaat 68520
taactagaaa aaggcacaaa ggaaaattgg ggaaaataat gaagatatat gatttctcaa 68580
ttgtggtggt cgttacatgg gtttattaat gcatcaaaac tcaagaaatg tacatttaaa 68640
atgagtgcat atgattgtaa gtgaattata cctcaatata gttaattttt taaaaatcat 68700
agatttcttt atatttaatg catgaacata aacctaagac actcctccac tccaaaactt 68760
aattaccttg tgatcagcag agcagaaggt actttgtgat atataggtag agaagatgaa 68820
gtcttgtgac atttaacaag ggacaggaaa atggaccttg tcctaagtta ccaaactgca 68880
aaaatatcac ctacaaaggc tattcataac atacattttc aaggggtta caatatttgc 68940
ctactataaa attttggatc tgtaaagggg ttaaattatt tgtgcagggg aataaacatc 69000
aaagaaacat taagaggtcc agagaagtaa aataggaagg gtcttttggc tagaggagat 69060
atttaacttt cagaacatgt ggaattaagt tgtattgatt atgatctgat cttcttcccc 69120
ctaaatttga tcctcttcct gtaatctatt gtttccatca tcttcaactc ttccctttcc 69180
ctctcccttg tccctcagtt ctagtcaatc acaaagtcct acagtttcac tttctgtata 69240
ccttatttct ggaattcatc tctagacttc aaaatatata tatatatatt ttttttgag 69300
atggagtctc gctctgttgc ccaggctgga gtgccgtggt gcaatctcag ctcacagcag 69360
cctctgccac ccaggttcaa gcgattctcc tagttcagcc tcctgagtag ctgggattac 69420
aggcatctgc caccacgcct ggttaatttt tgtattttca gtagagatgg ggtttcgcca 69480
tgttggccag gctgatctcg aactcctgac ctcaggtgat ccacccgcgt cagcctccca 69540
aagtgctgga attacaggtg tgagccactg cttccagccc aaaatatctt aagtagataa 69600
ttgcacgact aatctctgct tttctctccc agcagccttc caaattcatg tctcacagct 69660
gacagagttg ttcctgcctt cagattcatg acctggctct gtgttccagc tcaggctttc 69720

tctctcatat cacctcttgc ctctctgttg cccccatatt ttcccctctg gttggttggt 69780

gctcctttgg aaccctctgc atatcttttc aagaatatta tgacttatta tgcctataaa 69840

ctttgtttaa ttatttattt ctaaaatttg acagggaact ttccgaaggc aggtattgtg 69900

tctttctcat ttaaaagcaa attctcgcct ggcatggtgg ctcatgcctg taatcccaca 69960

ctttgggagg ctaaggtgga cagatcactt gagcctagga gttcatgacc agcctgggca 70020

acacagttag accaaaaaaa aaatatatac gaaaattagc ctggcatggt ggcacacccc 70080

cgtagtctca gctagtctgg tagctgaggt gagaggatca cttgagcctg gatggttgag 70140

gttgcagtga gctgtgattg tatcactgca ctccagcctg ggcaaaaaag taagatcctg 70200

tctcaaaaaa aaaaaaaaaa aaaattagtg aatcctcagt gtttaaaaag tccataaaca 70260

tactaaacat agaagacctc caaatgaaat taatcaatta ttatttagtg ggttgcttct 70320

cttttgtttt aatatagttt taacaaagag taaaagttat gatcttttta tatgtaaaat 70380

aaataatgcc gggtttgaca taaattttag gaaaactaga gacgctactt cctaaaaatt 70440

ttctttctat aatcttccta aatatttttc cataaagtac aaaataatag aaaaaaatta 70500

agagattgag tatcctttca ggaagtgata tgacaaatag ggttcgagaa ctatttgaat 70560

tctcaccact tttcataagg gcagatctca agttaaattt ttctattcga atttaaatga 70620

ctttcactgg aataccatta cagaaaagct tctgtgttta gatggcaata tggagtttct 70680

tttcttggaa tattaattga aggagaagtc ttaatttttt aagtctatat ctccgtatat 70740

atttgaacct attttatatg ttagtccttc tctttagtaa ccttcatcca cagtgaacaa 70800

gatttaccct taccttttaag cagtagcggc tactttatgt gaagtgaaca gctgcttttt 70860

ttatctgcat ctagacatca agtagtccag agtcctttct aacaccctag caatagaagt 70920

aagaatattt tgaccattcc atgacttgat gatacttcta gtaataatac tgtattatta 70980

aaaacaaaca aacctttgtg cagtggtaat tgaagcagtt ccttgggaac atgtattaag 71040

tacttttag cagttaagtc cactctctgt aggttaagga atatttaaat aaaataatgt 71100

ggcaaatgag ttcaagatga taaatgcgat gagaactaaa acagctttaa ttttatgtgg 71160

gaaataaata gaggaaaagt acattacagg gctcctggac ttatttcttt cttcaaagtg 71220

tttctcctag cgaatattat tactattttt tctcttaagt aaaaaataca caaagtatga 71280

atctacacag gataataata ttgaagttaa ggatgatgtc tcctccttca ctctccaaaa 71340

tactatttac ttggcttcat ggaaatctct ctcactccaa ttccaccgtg tcaactgagg 71400

tcttctgttc tttctctccc tatagcatat tcctgttaca taaatcctaa actgtgtcgt 71460

gttagtcaca cactgtaacc tctagataag cgcctgtcca gaggttctca atcagagcct 71520

tgcaaatatg tattaaatca atgggtcatc ttcagtgtct cagtgggccc ttggatatgt 71580

tttgcagact gctgtgagta tgtagggatg tccagtatcg agggaagtgt ggatggcttt 71640

cattggttct tatagggctg aagaacacat agagcagtaa gcacttctac tgtagggaga 71700

gatcgagctt ctcccatccc cactgctggc accaccacca ccctacaccc cattttgagt 71760

tctgaaagtg aatccttgag aaagaacaca caaaacaacc atcataatag tgggcacagc 71820
tgtgggtggt agaataacat tcccaagctt cttttcctac acatgattaa tattaattca 71880
gcaaacattt attcagctcc tacttttaaa caggcactat tctaggtact aaagacatag 71940
aggcaaagca tacaagactc tgcctttgtg aaacaattaa gaaataagta aaaagaaaag 72000
aaacagaaaa ggcaatttgg atagtgtcag gtgctataaa gaaaacaaaa tgccatttta 72060
ataaataata ataatacaat gttttcatac tatgtgctag acactatgct agtaggtatt 72120
tatagacata acctcaatta atcctcaaaa tggcatgttg atatcaatac cccaagttta 72180
catatgagac ttaagatgtc tgagtatatt cccccaggta acaattaata tgcacaataa 72240
aacttttgc tcattcattt attaacctat gttgattgag tacctatttt gtgtcaggca 72300
tcattttaag gcacctggat atagttatga acaaacaaat aaaaatctct gccctcaaat 72360
aattaatatc tcacagaggt taggcaaaat ataatcagaa aataagtata acgtatagga 72420
tgccagatca tgaaagaagc tatgaatggc atcaagaagc tggaaaaggc aaggagacag 72480
attttctcct agagtctcca aaacagaaca cagtcctgcc gacaccttaa ctttaggcta 72540
gtgagacccc tattggactt cagacttaca atcccacaat gtaataaatt tgtggtaatt 72600
cagtagggga acaatagaaa actaatacga tatcaaaaca aattatatca tagaacaaga 72660
aaatgtaatt gtgacaaata atacctacaa aaatgttgta aatgctaggc aaataatgtg 72720
tttaaagcac ttaggccaat gttcaacgta aagtaattca tgctataata tcatcatcat 72780
cattaccaat atttaggggc tctaacaaat gatgtacgtg taagcagatg taagaaaatt 72840
tccttgctga agaggaggta ttaatagagt atataacaat agataacaaa ttccaaataa 72900
aggcaaacta aatgttttat tggattaaat ttaattttaa aaactacaag aggccgggcg 72960
cggtggctca cgcctgtaat cccagcactt tggaaggctg aggtgggtgg atcacgaggt 73020
caggagatcg agaccatcct ggccaacatg gtgaaacgct gtctctacta aaaatacaaa 73080
aattagctgg gcctggtggc gcgtgcctgt aatctcagct atttgggagg ctgaggcaag 73140
agaatcactt gaacaaccaa ggagtcggag gttgcagtga gccaagattg tgccactgca 73200
ctccagcctg gcaacagagt gagatcccgt ctcaacaaca acaacaacaa caacaacaac 73260
aacaacaaaa ctgtgagatc catggtgggc ttttaagagg aaaatgcaag ctaaggtttg 73320
tttagactct gagtactgca tgtgtaaaaa taaaggcatg atgaaaagat caagagatta 73380
gagtgatact ttttatctac tagtgtcaga gtcatgacca ggggattggc tatgagaata 73440
cataagctgt gccaggagta atccaaggag attgtttcaa tttggaagag tgtccacaga 73500
atgattctca tactagacgt tgggctattg taaagaaagt tggtaggtac tccatcgcta 73560
ggatcatatc agggagaaat tgaacaggat ggccctaatg accctgttgt acccctagct 73620
tatggattag gcaagtcact tctactcgta taccctgttt ccccatttgt aaataagagg 73680
atgtgttact ctaaggatct ctaagattct ttgcagttgt taaattgcat agctctccac 73740

tgattccatg gtggaaattt gctattctat tacaaatatt ctaaatgtat gagatatcag 73800

acatactcat ttaaaaaaca aaatacaaaa aataagtatt ctacaaataa acacagataa 73860

tgtttaaatt ctatatgtct ttgtttctct tcagaagcat ccaaaataca aaccatctaa 73920

gaggcaagaa aatgtcgtga tgttcctagt gcaagttaaa aagatttgct ttcctcaagt 73980

cggaaagccc ttctcatttt tgaggttttt ttcttctttt ttttttcaag tgaaagcatt 74040

ttggaggagt caatatccat ctttaaaggt agccaggtca catgtataca tatgtaacta 74100

acctgcacaa tgtgcacatg taccctaaaa cttaaagtat aatttaaaaa aaaaagaatt 74160

taaataaaaa aagaaaatca gagagaaaaa aaaaaaagat gcatgtgcac cctgatacta 74220

ccatccatag tgatacggtt tggctttgtg tccccaccca aatctcatct tgaattgtaa 74280

cccccatgtg ttgagggagg gaccttatgg gaggtgattg gatcatgggg gtagtttctc 74340

catgctgttc tcatgatagt gaatgagttc tcataagatc taatggttta aaatcatggc 74400

acttcctttt gctctctctt tctcctgcca tgtgaggtgt gccttgcttc cccttccccc 74460

tctgctatga ttgtaagttt cctgaggcct cctcagctat gcagaactgt gagtcaatta 74520

aacttctttc tttataaaaa aaaaaaaaaa aaaaaaaagg tagccaggta aaaattactt 74580

gtttccagga cattttcacc tgaaagaagc attgtcatat aacatagaag caagaaatcc 74640

agtagtgggg gttatttaaa aatagctgga aaatttcaat cagcatgagt ttgaagcaac 74700

aatttatcat caccttttat ggtgggtggg gttaagaaca tttcagcggg caaagtggtg 74760

gtgatgggga agagacacca ggggaggtga ttcccattgc attgctttgt aaacagaggc 74820

acaggttctt catttttgtc acacaaaatc acagctatgc agaatttatt aatttattct 74880

tctgagacaa gaaaaaagcc accaaaggaa accaacagct tgctcctctc acactggggg 74940

aaccgtatga gagacttatc tatccctgac tttaattttg acctgaggag agctcctctt 75000

aaggaaaaca aattaattca atgactatac tacttaatca ttgaccttta tttaataaga 75060

gatttttcca taggatatgc tgagctgtct cacttacatc agttgtgtct cctgaggtgg 75120

gtgacaggag accacaaata ttgcatagca cacaaatcgt taatagcagc tgtataccaa 75180

accattacct aaatatgtag agtacaattc attctcacta atgtcagaga gcatgctata 75240

aaatggtgaa tccggacagc tgaagatact gaataataac ctctattttg aacaagttta 75300

cagtgttcca atcagtaatt aaattgatac ctgatgaata tatgtgtgtg tatgtattca 75360

tagcagagat ggttttcctg agataaggat tttgttattc ggataggctg ctgctggaat 75420

tgtccttcta cccttgtttc tttgtcctta gtcatcactc atacctcttt ccactcttct 75480

gccatcactt ttgtcaccaa agtcatggtc ctttccccgc cgattgctgc tgcaggtcta 75540

gggcaccaag acttaggcag cactcaccat gtgccaagaa ctggaccaca ggtaccatcc 75600

agcattgctc atggagactc tgtccctttc tgtaggacac cctcctttta gctagcaacc 75660

cctccaccac ctagagcctc tggacctctc attttaatat taagaactag gaaaacttac 75720

cgctgagaat aactagtaca actagaactg gtagagaaat ctgggtctct tgggaatgga 75780

tttttaggct ttattgatta gaggtgtatt aataatgcag tgttatagtt tcatgacata 75840
acgaataaaa aagttcattt tggacttgcc tttcagctcc ctaggagcta aaagacgtat 75900
ttaatgtaac ttgtgtggtg gaaataagtt ctttttcag gcaaaagatg tgcaaaccca 75960
tctggggaag aaacattaaa aactaaggag acagtgtcct agataactat gttcttttcc 76020
tgttttagtc taaaataatg attagttttc ttatatatct tcatttgtct tggttccttt 76080
tagcccaatt taataatatt attgcagata ttgatgaaaa cctttacctt cctcttaatt 76140
catcaaagta cttgataaaa tttatacata gtacattaat tgggaggttt ttatgagatt 76200
aattaatata atgaactgat gttgaaatta tttaaaacct gaattattat tgtattaagt 76260
aggacactta atacagttaa tcagttctgt ctttattcat ttgtgagaat ttttggcaag 76320
ctattgtgaa tattcaggga agggaatgta tttttagcag gaatcttata cctcctacat 76380
agaaatgaag catttactga aacatccatg aaacaaaatg tttctgaatg tgtactatac 76440
acttgttata agccccttt cttctgtagc tatattttgg agaaaaatct ttgctttgac 76500
aaaaaaaatt atgttgactt acacatatat tttataacta agcagtgttt ggtttgtgat 76560
aaaggataca aaaatataaa aatgttcagc acacgtaagt aaggccttgt tgacaatgtg 76620
agttatgcta ctggatactc aaaaggaaca ttcagtgttc tcaggtggtc tctagactgt 76680
ctcaagccta ggaagatatt ttataagcaa aggaataaga gaaggaagat tcagatttaa 76740
tccaagtgaa gaattcagtt ttgtgtgcct tatcctgtta ttttgagagg cagccaaaag 76800
atgctggtca gcaaggagaa ttgtaagttg ggcagccaac tctgatttct caacctctta 76860
gctgttttct taaactcaga atttttaatg aatttaaatg tccatatcag gtagactttg 76920
gggatgcttt taccagtgat tttcagaatg ttactttctg gcatttcttt tcacgtagca 76980
ttatattaaa aatgaattca ttcatccacc ttcccttgtc cttactaatt ttccctccta 77040
ctcccttccc ccttgttctt gccatgggga catgcaaaca ctggtggttg atgtctgagc 77100
aaggctgctg acaggggggag gaaggagatg tcaagcagag gtcaatggca gtgtgcccag 77160
cagcctagga agtaggaggg aaaagagaga gagacagaga tggtggatga aagagaaagc 77220
caggatgatt atggtggtta tgatacttgt catgctgaac acccaattga gcacccaata 77280
agcacataat aatttaatca tcctctggct tggatggcag tgttctatca gtgttgactt 77340
cctggttgtg acagttttac agtgttagtg tagaagagaa tccttgcttt agagaggtac 77400
ttactgaagt acttagggtt aatgcaccat tgtgctggaa aaagatacgc acacacacgc 77460
acacacacac acacacacac tcacacacac gcacaaatac atccatgtgt taggcagagg 77520
gagcaaatga ggtaaaatgt taataattag gaattctggg tgaagtggat agagggactc 77580
tttgactgtt cttgaaactt ctctatacat ttgatctgtt tcaaattctt cagaaaatca 77640
aactacaaaa acttaattca tttagtgaac atctactgaa catctgtata ttaaatagtg 77700
ttaaatgaat gtcaattaaa atgctcaaac acagtagagg ttgattctca ttcacataag 77760

tccatggtag gtgtttttgg caggtgggtg agtttctccc ttagggagat tgaggaaccc 77820

agactcctcc caagttgcag ccccaccgtc ttctgagggg atgcatccat acccacttcg 77880

aagtagcata cattatttcc tttctcattc ctttggatac cagccacaat ttattcaagg 77940

tagacagaaa attgtagtat atagccatat gccctgacaa agaagggaga acagattttg 78000

gtggacaact agcaaactct gatacaatct gttattaagc actgtgtgtg gatagatgct 78060

aactagaagg agattatctt cccttcagca aatataaact gaatgccgtt tatttggttg 78120

aaactaagct agatcatggg agtatagaaa ttttataaga agacatagtc acttctgtca 78180

gtgagctcaa gaagaattag tatgcggaat gtaatcatac ctacaggggg cttgtgccac 78240

ttaagtaaaa tgaaacatta ttttgagtac aatttagcaa taaatgtact acgagatcat 78300

taaaaatcat gtttgaatgt tattgtgtca aggatgggaa aaagactttt gggttgtaga 78360

cttgataatt atagttaaaa acagttttta ttcttgttta gtcttatttt ttatgtttaa 78420

acatatttat acttgctaac atttatactt gctaagtaaa gactgttttt acaaccatga 78480

caagaacaaa acatattagt aatgcaaatg ccacatttcc tacaatcaac taatcacact 78540

aacatatttg catggaagaa tcactgggat tgatctggcc acgtgtgtag tcatgcccaa 78600

aatgtgaagt ccatctgttt tgcaattttt tttaaccact gttatccaaa tgctccttgg 78660

atttttttta ttagtggata tattttggag gtcagacacc ctcttggcta gatcatcacc 78720

tttataacaa atatatatac tattctcatg gaaatatatt tagacgttgc cctactggga 78780

atttttttca agtaattaat gtacagcttg tgcaacagct tgatcttggc ttcatggaaa 78840

taattcactc ttagcagcat ctaatgccac aaagcattta tggatgtcag ctcagaactt 78900

acttttattt atctctgagt tactttttt ttttttttt ttttgagaca gagtctcact 78960

ctgtctttgg cttgtcccta acctcttaac agacttaata ttaagctcca tttcactcag 79020

tcgttctgtt gtcatataaa tgagacattc tacaagcata gtttttagtt tctgccagag 79080

catcatacaa cattgtgagc tatgatgaag ataaagacct agagaagata tttaatatga 79140

agttcattat ctaatatttg gtatgtgtgg caaaatagca atctactgct tggttctgct 79200

gtaatctatt tacccaccca tcccatcttt ctttcaattt aaaaggataa tgattttagt 79260

cacgattata cataaaccca ttaccatagg caataaacaa tggggcaaac cattggtccc 79320

atagttggag tgtggtctga agtgtgtttt ggtggagaga gatctatgtc tggagatagc 79380

taacatggat ttggatccca gatctgctcc tacctgttgc tgtgcctgtg accaaatcat 79440

gtgatctctc tggtttcagt ttacttgtga ataaagtaaa taccttcatc aacacctgtt 79500

tttgaataca atgtttttct gtaatttttg cttcttataa tgttataatg atcatcctta 79560

catctaaatc ttggtttaca ttttcatcaa ttcttttgga aagattggag aagtaaattt 79620

tggagatgta tgtcggctat taaaaatgtt taatttttta attaaaaatt aaaacgttga 79680

aaaatcctga tgcaaaataa atgcattatg cttagtgaac tcttctcatt tcgaagttta 79740

ttcaccttct tgtttttgca agtttcctga aaaatgcata taaagtcact aagttagcag 79800

aactttataa aattatataa ctatatataa tcttttgata tcagtgaagc cagctgatcc 79860
tatagaaata atgtaggaat tataatcact agcacataat ttaagagtcc tgtggtctta 79920
ttcatgttat ttaccctctc tgaatcttac atatagtaag agggttatta tacataatat 79980
gtgtacatgt atacaggtaa gtaagtatat atgcttatgt gtaaaagcag agttattgtg 80040
agagtcaaat ggaaatgtga aagtactttg tagtttttta ttactattat taatttttaa 80100
taaaatggta acattcattt aataatcatt agttttaact tcagattgta ctggatttcc 80160
tctagtattt cttaagatta gtgaataaag tatttctcct aataaatata ttgactactg 80220
tctttcgatc aaacatatta ggtatatttt tacagtagca tcaggcagtg aaaatttgaa 80280
gctctttata gaggactgat ttatgatgaa aaggaataac atgaacaaat ggaattatat 80340
gaagcttccc cagaaatatc taagaggggc caattttaag aaatatctga cttctttttc 80400
atggacattt caaaataaac ctaactcata tggtacagtt tttaagaggg aaaagaaaaa 80460
accatctgag aatctctgga attctgccga aagtatcact tggcatttta ttctaccttc 80520
tggatgcagt tgattgacag tagtgttatg atgccagggg tatagtgact agaaaaagaa 80580
aaccagggaa ttcagtgttc ttgctcatga agaacagctt ggttctttaa aaacaatgag 80640
attttgccac cccatctcac aaacctatga tttgtgagaa caatcccttt tgtgttgcaa 80700
gacttttaca tttctcttcc cacactatat tagaagaata aacattgctt cataagtacc 80760
gattgatagt ctcatttcat atttttaaaa tagagttact ttaaggttaa atttttcatg 80820
tagattaaaa tgactaagta accattcaca tatttcaaat aaaatatatt tttactacaa 80880
aaggaaaata actagattct taagtgttat agtcaagtgt aattgagtaa tatgaattct 80940
aaatgaattt ctaagatctg ctcagctttc actactttag gaaggaacaa cttaagaaaa 81000
attttaataa agatatctct tcacacacat ggcagtgttg tacttagaga acatgaccca 81060
aaatttttta tgactgcata ttgaattcct gatactcttg ggaagctcca aaagcaccag 81120
tggagtttcc agatgtaact gtggctgcag acccgccagt cccggtgttg gaagggatca 81180
ttataggctc ttgtgtgcag actcatcttc agacccagag gaattaaata acttgcccaa 81240
agtcgcacaa ctttctcatg gtaggttggg cactagaata aatattgctt tttcttaaga 81300
gttttagcct ccgtattatg aaatcttcta tgttctgctg atgatatctc ccttcttcat 81360
ctgttttcta tttttaagca atggaaatac aaacttgcaa ctccccattt ccaacacaac 81420
ttagaaaaaa caatatttaa agaaaaaatt acaggcatct catctccttt acctgacaga 81480
tgcttgatag taatggcctc tagataggga tgacatctaa tataaatgtg tcctttcaag 81540
tcaagctttc tctgttcatt agtagaaata ttgtatatca agtgtgcaaa aattttcttc 81600
aacagggagc tttgtttccc tccttttatt ataacaatct gagctttgtg gtcccagggt 81660
ctcctagtgc ctgtctttag gtctgtttat tcacatgaag aaagcatgtc atatagtatt 81720
atctaagact caggctgctt atgcatgatg acagaagggt tcccaggcac aaacattcat 81780

ccatgcattc atccatccac ctattcatcc attgatttgg ctgataatta ttgactactg 81840

ttgagttgcc ctcagattta gtttctgtcc ttctgccatg gggaaatatg gggttaagcc 81900

acaacatact cttctcttct ttttctgcac cttcttagta tatttagttc cattttgtct 81960

agccctgcct ctgacttctt tgttgtactt caggtttttt atcattgaaa gttatttctg 82020

gatcatagat cattctcttg gtcactttgc ttgttcactt ataaaattaa ttcagaaaaa 82080

atgacccaca gtaattactg taaatcacag accataaact ataatactgt atattgtatt 82140

atagtacaga aatatttata ctttaaaatg ttttaaatat agatattata aaaagatatg 82200

tctcatataa gtaatataaa tacttttta ttacctcttc tctccctatt ctccaggcca 82260

gtgttttaaa aatccatctt tatatgtcca tcctggaaaa aactcatgat cataaatgag 82320

tttctcaata gagtttataa gcccacagtt gaaacacaat tgtcttagca tccatttagt 82380

tgtcatactt ttaagattta atggcaaata ttatgttttg tttcttcaaa agaaatattt 82440

taaaatttta gtaaaggcag ttagagaagg tagagataat ggactgttta atcctacttt 82500

tcatcccaca agtgaacaaa aaaatgataa aacatttttc ccaaaatgta gctttaacta 82560

tacttaaatt tggactaaaa tgggagatat cttttctact attgaaaagc cgtgtctgta 82620

gattaatgct aaaatcgggt gtaaaagcaa aatttgtttg gcttgattgc caatggccca 82680

ttcatttggc tacagaaaca atagcacata gcaacagata atgatgtgag atcacctagc 82740

tcaagtaaga gtgtctgatc cgtcaaaaat atatacatca agattcaaaa gaaatgtgtg 82800

ttttctcaag tcatctctgt aaaaatacat taaatagagg aatagaagtt tgactttgaa 82860

aatacattgc agacccaatc cgtctttcct attttctggt gaaaagtatc aaatatgtgg 82920

aacctggaac tgctattctc cttcttaaaa atctttctta atattctatt gataactggt 82980

gcaagcctaa ctttttgtct tacccgattc ttctcacacc aaagtgatag gaccttcagg 83040

tagcctttgg atagaagata aataataatt taactattga tggaagttag tattagaatt 83100

agacttggaa gtctatggaa taaaatgatt ctacaacaat ttgtacttca gacattagta 83160

taacaaaaca tgtttgcccg tgcatgcgga aacaaccaat ttcatgtgga tgcttatatt 83220

cacaaaggag taaccacctg gggtttccca ctgttgctcc agagaaaact agcagcagga 83280

gaacttctct gaaggtatca agacatcttt aaaaaacact tgttaagtgt tggttcagct 83340

aaagcaggga gttttcagtt agtaatggct tttaaaaatt aaaacaagtt tagcatgtag 83400

gtcattaacc ttgaatcact gtcatgatta ttattaacca tctgttctca aatcgaaaga 83460

tatttttctt ttctagatca catttattct cacattgctc aatttcacta tatatcaaga 83520

catgaaaact gtaaaaatca caccttctac attattattt ttattgaaaa attcctaatg 83580

aaacagtgcg ctctgggata gagaaaggaa ctaactgaca ttttgcttct taacttgttt 83640

ttatgcaagt tctaagtggt ttctggccat gtacataaaa gacaaatatc tggaaaaaaa 83700

actagcagaa gtcagttatt tggctctatc tactttgaga attatgttat ataaatgtta 83760

ggaaattttt tgtaatattc ttatttagaa atgaaatata aaaagtttta aaaatatcta 83820

aggacagtat acagtcctaa agtaaagctg ttaggtaaat gctacacaat cctcttatta 83880
cagagtcact tacctgagaa tataagaaga gggcctcttg tttaagagta aatgtgagct 83940
gcaatcagga ttctgcactc atttggacac ttagttttgt ttttccatga ctggtgttgc 84000
ctgttactga gacacctacc tgtcatgtga ccacagctta tgttacaatg tgtctagtca 84060
gacttagaga tgtgtgaaag agcagtacct agacgggaaa ctatgggtct ataaaggttt 84120
tgccttcttg ggcggagttc aaactaggaa gccacaaaac ttccagttgc attttcacag 84180
attaatgaaa tatattttac acttttcctg aaagatattt tatttgtgca aaccttgtta 84240
caaagtacag ccagttgatt aatcgatgaa gtgatttgta gtggattctt atattttgtg 84300
taagggtata tgtgaggccc tatatatgag gctttctata taatgaagta taattcagtt 84360
cagcatttca attcagcaat cacttattgg gcctctactc agttgccttc agggctttat 84420
aatttaattg ataaagggag gttaattaat taattataac aacagatcgc ttaatagtgt 84480
aactactaat ttaattaatg acaaataaca atacattaaa agaaatgcat taataaaaat 84540
aatatattgg tgttatagac aataattttc tgattaactt tattattatt atttcaatag 84600
cttttgggga gcaggtggtt tttggttata tggagaagtt gtttaggtat gatttctgag 84660
attttggtac actcataacc tgagcagcat acactgcacc caatgtgtag tctttcattc 84720
ctcaccttcc tcccaccctt cccctcaagt ctccagagtc cattatatca ttcttatgcc 84780
tttgcatcct ttagtttagg tggcagttat aaatgagaac atgtaatgtt tggttttcca 84840
ctcctgagtt acttcactta gaataatggt ctccaactct atctacgtag ctacaaatgc 84900
cattattttg ttccttttta tggctgagta gtattccata gcatccacac acacccccct 84960
atgctttata tatatatgta aatatatcac attttcttta tccactcatt ggttgatggg 85020
tatttaggct ggttccatat ttttgcaatt gtgaattgtg cagctataaa catgcatgtg 85080
caagtgtctt tttcatataa tgacttcttt tcctctgggt agatacctag gagtgggatc 85140
gctggaacaa atgattgttc tacttttagt tctttaagga atctccataa cttttccatg 85200
gtggttgtac tagtttacat tcctaccagc agtgtaaaaa aatgttccct ttttaccact 85260
tccatgccaa cgtttatttt tttatttttt aattatggca attcttgcag gagtaaggtg 85320
gtatcacatt gtggttttga tttgcatttc cctggtcatt aaagatgttg agcatttttt 85380
catatgtttg ttggctgttt gtctatcttc ttttgagaat tgtctattca tgtccttagc 85440
ccacttttttg ataggattat ttgtttttttc ttactgattt gtttgagttc cttgtagatt 85500
ctggatatta gtcctttgtc agatggatag tttgcagata tttctcccat tctgtgggtt 85560
gtctgtttac tctgatgatt atttcttttg ctgtgcagaa gctttatagt tttaggtccc 85620
atctatttat ctttttttgtt gttgttgcat ttgcttttgg tttcttggtc atgaactctt 85680
tgcttaagcc agtgtctaga agagttttac caatgttatc ttctataatt tttaaggttt 85740
tgggtcttag atttaagtct ttgatccatc ttgagtggat ttttgtataa gttgagagat 85800

gaggatccag cttcattctt ctacatgtgg cttgccaatt atcccaacac catttgttga 85860
ataggatgtc ctttccccac cttatgtttt tgtttgcttt gttgaagatc agttggctgt 85920
aagtatttag ctttatttct ggattttcta ttctgctcca ttgatctaca tgtctatttt 85980
tatagtagta ccatgctgtt ttcctaacta tagtcttgta gtatagtttg aagttgggta 86040
atctagtgcc tccagatttg ttatttttg cttagtcttg ctttggctgt atgggctgtt 86100
gttttgttcc atgtgaattt taagattttt tttcttgttc tttgaagaat gatggtggca 86160
ttttgatggg agtcgcattg aatttataga ttgtttttgg cagtgtgctc attttcacaa 86220
tattgattct gccaatccat gaataaggga tgtgttttca ttagtttctg ttgtctgtga 86280
tttctttcag caatattttg tagttttcct gtagagatct tccacctctt tggttaggta 86340
tattcctaag catttttttt ttttgcagct gttgtaaaaa ggctcaggtt cttaatttga 86400
ttctcagttt tgttgctgtt ggtgtatagc actggtactg atttgtgtac attgattttg 86460
tatctggaaa ctttactgaa ttaacttatc agatctagga gcttttttgga tgagtcttta 86520
ggttttctag gtatacaaac atatcatcgg caaagagcaa cagtttgact tcctctttag 86580
cagtttggat gctctttatt tctttctctt gtctgattgc tctggctagg atttccagta 86640
ctatgttgaa tagaagtggt gaaagcaggc attcttgtct tattccagtt ctcgggggaa 86700
atgctttcaa attttccccc gttcaatata atgttggctg tgggtttgtc ataagtggct 86760
tttattacct taaggtgtgt atcttatatg ccagttttgc tgagggtttt aatcataaag 86820
caatactgaa ttttgtcaaa tgctttttct gcatctattg agtttatcat atgatttttg 86880
tttttactcc tgcttatatg gtgtatcaca tttattgact tgcatatgtt aaagcaaccc 86940
tgcatccccg gtatgaaacc cacctgatca tggtggatta tctttttgat atgctgctgg 87000
attcatttag ctagtatttt attgaggatt tttacatctc tgttcatcag ggatattggt 87060
ctgtagtttt ctttttttgt tatgtccttt tctggttttg atattagggt aatactggct 87120
tcatagaatg atttagggag gattccctct gtctctatct tttggaacag tttcaataga 87180
atttgtacca atttttcttt gaatttctga tagcattcac ctgtgaatcc atctggtcct 87240
agacttttttt tgtttcctga catttttttct attattgttt cactctcact atgcattatt 87300
ggtctgttaa taatttctat ttcttcctgt tttaatctag gaggtttgta tatatgcagg 87360
aatttgtcca tctcttcttg gttttctagt ttgtgtacgt aaatgtgttc acagtagtct 87420
tgaataatct tttttatttc tgtggtatca gttgtagtat ctcccatttc atttctaatt 87480
gagcttgttt agatcttttt tcttgttttc ttggttaatc ttgccaatgg tctattgatt 87540
ttgtttatct tttcaaagaa gcaggttttt gtttcattta tcttttgtat tgtattttgt 87600
gtttcaattt tatttattta tttatttatt tttatttta ttttttgaga tggagtctca 87660
ctcttgttac ccaggctgga atgcaacagt atgatcttgg ctcactgcaa catctgcctt 87720
ccaggttcaa gtgattctct tgcctcagct gcccgagtag ctgggactac aggtgcctgc 87780
caccacacct ggctaatttt tgtatttttа gtagagacgg ggtttcacca tgttggccag 87840

gcaggtctca aactcctgac ttatggtgat ccgcctgcct tggcctccca aagtgctgcg 87900
attacaggtg tgagccacca cactaagact caattttatt tatttctatt ctgatctttg 87960
ttatttcttt tcttctgctg ggtttgggtt tgctttgtct tgtttttcca gttcctagag 88020
gtgtaagctc agattgtcta tttgtgctct ttcagacttt ttgatgtaga tatttaatgc 88080
tatgaacttt gctcttaaca tggcttttgc tgtatcccag aggttgtgat aggttttgtc 88140
attattattg ttgaattcaa atatttttaa aattttcatc tttcttgatt tcattgttga 88200
cccaaagatc attcaggagc agattattcg atttccatgt atttgtatag ttttgagggt 88260
ttcttttgga gttaattttt aattttattc cactgtggtc tgagagaata cttgatataa 88320
ttttgatttt cttaaattta ttgagacttg ttcatatggt ctgtcttgga gaatattcca 88380
tgtgttgatg aaaaggatgt agttgttggg taggattttt tgtaaatatc tgttaagtcc 88440
atttgttcta gggtatagtt taagtccatg tttctttgtt gactttctgt cttgatgacc 88500
tgtctagtgc tgtcagtgga gtactgaagt cccccactat tattgtgttg ctgtctatct 88560
catgtcttag gtctagtagt gattgcttta taaatttggg agcccaagtg ttagatgcat 88620
atacacttaa gattgtaaat ttttcctgtt gaactaatta ttttatcatt atataatgtc 88680
tctctttgtc ttttttaatt gttgttgctt taaaatcttt tttgtctgat ataagaattg 88740
ctattctttc tcactttgag tttccatttg catggaatat ctttttccac ccctttacct 88800
taagtttatg tgagtcctta cgtgttaggt gagtctcttg aagacagcag atacttggtt 88860
gatggatttt tatccattct gccattctgt atcttttaag tggagcattt aggccattta 88920
cattcaacat tagtattgag gtatgaggta ctgttctatt catcatgata gttgttgcct 88980
caataccttc ttgttgttgc tgttgttaat tgtgttatta ttttatgggt cctgttaaat 89040
ttatgcttta aggaggttct attttgatgt attcaagtta ctgtttcaag atttagagct 89100
ccttttagca tttctcagtg ctggcttggt agtggcaaat tcagcatttg tttgtctgaa 89160
aaagacttta tctctctttc atttatgaag cttagtttca ctggatacaa aattcttggc 89220
tgataattat tttgtttaag aggctaaata tagggcccaa tctcttctgg ctagcagggt 89280
ttatgctgag aaatctgcta ttaatctgct atgttttctt ttataggata cctgatgctt 89340
ttgcctcaca gctcttaaga ttctttcctt catcttgact ttagacaacc tgatggctgt 89400
gtgcccaggt ggtaatcttt ttgcattgaa tttcccaggt gttctttgtg cttcttatat 89460
ttggatatct agatctctag caagactagg aagtttttct tgattattcc ctcaaataag 89520
tccttaatga ccccactata taacatgaaa tatctgttat tggtactgag gtgctggcca 89580
caaacaattc tgtgtgtcct gaaaactctt cagaatattc gtcatcttta gcacttgtta 89640
tcttagtgtt tgggcttggc ttagagtgat acatctcata acagggcaac agaaagaacc 89700
aggaaccaag atttatataa cataagtcag taaaactaga ggcaccagag gtttacattt 89760
acattaggtt acattttcta acaggtagca aagcacatga atgaagttca gtggaaggcc 89820

ttcctcagga atccagtaaa aaccaaacat acacacacac acacggacat ccgtgaggca 89880

ggaagggatg tccactatag tacagacaag catcctggaa ggccatcaag gagtaggtgg 89940

gtttcagttg cctcaggaat gtggcatgga cccaaactaa gtgagtacag atacttgtca 90000

ttgaggagaa gattcaaaat agcatcctag gtgtaaaaac tgaggcacct ggggcagggg 90060

aactaggtct ctggaatgtt ggcttaaaag caccctctc aggaaaggcc tcatatgcca 90120

tgcaggggt tatatatgtg ttgtgggaca cagatggcaa ggagataatt ctatgcacca 90180

ggctccacta ctaacaggta aacagaccaa cattaacaga gacttaggta aaaaggtagg 90240

tgcccagtgg tcagttctca ggcacttcca agatgcacct aacagaaatg taacttggtg 90300

tctattgtgt cctaggtcta acaactgaag agaagtgaat tagtacctct tgtggacaga 90360

gaaacagggg cagagaccca ttacaaagct gtctcagata ggcatttgaa gctgtttaag 90420

tatgtagagg cttaagtcag gctggttctg aaatgtgaga gagggttaag cttcatggga 90480

aatcagcagg gtagtttgct atttttttatt ataaccaatc tcacaatagt ttgggacatc 90540

aaatatcaaa ttgttgggaa tatttatcca tattagtctt tttgccacta atatttaaaa 90600

atagtttaca atatacaaca aaaagttgta aaatttccat ctccacttaa tcgatcttat 90660

gtaacccata caatacatca aatgtccttt ccccacttta tgtttttatt tgctttgtca 90720

aagatcactt ggctgttagc atttgggttt atttctaggt tctctattct gttttattgg 90780

tctgtgtgcc tatttttata ccagtgccat gctgttttgg tgactatggc cttatagtat 90840

agtttgaaag caggtaatgt gatgcctcca gatttttctt tttgcttaat cttgctttgg 90900

ctatgtgggc tctttttgg ttccatatga attttaggat tgtttttttct agttctgtga 90960

agaatgatgg tggtattttg atgggaattg catttaattg tagatttctc ttggcagtat 91020

tacccaggct tttcttattt tggcaccctg tgctgctgtc tccttttcct tctttctgct 91080

tctcttaacc aactgttacc tacacttcaa tactttctga gggcaattca tcctccagta 91140

agtctccctg aatcttctct tccttccctg gcttattata tatccttcct cttggttccc 91200

atagcaccta tgcacacttc tgtcattgca cttgccaatt tgttttataa tgatctgctc 91260

atctgtctcc tcacttagac tatgagctca ctgagagcaa tggctgttgc attcacctta 91320

tatcctcaac accattctga aggcaagaga aagaataccc agaggtggag ctgggaagct 91380

ggttgtccaa gtagtgaatg actctagttt gaattgaact ctatagccag tgggcaatgt 91440

ggatgtgttg acagtttttt aacaggggac tagtgaaaac acattttggg tttagaaaaa 91500

attgcaagtc tgatgacata cataggagaa gagattagag ataggaattt cacttcagaa 91560

atttaaccac aagagcaagt gacagatcac ggaagtctga accagactat aaatgtgaga 91620

atagagaaaa aagttaacaa tttgggtgtg aaagggcgag ggagagaggt gtgaagaatg 91680

actaagtgtg gatctgtttt taaggattga atggaaattt gagcatttta gctaatcagg 91740

cctaatattg agcaaagcaa aactcttgca aattgttatt tcaagtgtgg gctgagaaaa 91800

tgaaaaaata taaattctca cgttataacc tcttccgtgt gtctgatttg atagaatcca 91860

gccccattgc ctccaaattc cattgcatct tagaccagca aacacaagtg aattctactt 91920
aaccccagaa ttctgtatga aaatcttact gccttttttt ttctaatcat gtgtcaaagt 91980
gtgggaagaa cttttattta tgttttaata aattgtcagt ataaccattt ttacttgaaa 92040
atattataat ttttcaagta aacaaattgt ttctctaagt tgaaaatttt atgatggaat 92100
aaaagtattt ttcctcaaaa cacatagaaa ttttacaaca atattttaga gttaactaaa 92160
tgtttcttta gtagtttagt cacttaaaaa gtgatatgat tatgaaaata cttaaacttt 92220
gtcttttaac tatttctaat aatgctattg gtataatttc atatttttat actgatcttt 92280
tctccaaact ttagtaaaac atacttctgt aaacccctgc ccacaaaact gaagtccaca 92340
tttacttctg aatgactgat aagtttgtaa aagtatgcat gaatttcgtt attaaattaa 92400
agtttttatt atattttatg cacaatggta taaattatta aattaatttt caagcttata 92460
gaacattgat aaagattgtc attagaaaac cctgagttga ttgttataca ttacataacc 92520
tttcattggt ggattagtga atatgttata gggtgaccat gaatccaaag aatcaaagct 92580
ggctacagca aacagagggt caaaaggata tggaactatg catgatccag caaaacactc 92640
aatatctgtt ttcctggaat gttaaaagac aaagaagaaa acttggggaa cactagatgc 92700
atatagttct ggttctttaa gaataaaaat atgggccggg cccggtggct catgcctgta 92760
atcccagcac tttgtgggag gccaaggcgg gtggatcaca aggttaggag ttcaagacca 92820
gccaggccaa catagtgaaa ccctgtctct actaaaaata caaaaaaaaa ttacaaaaaa 92880
aatacaaaaa aaaaaatagc caggtgtggt gacaggcacc tgtattccca gctacttggg 92940
aggctgaggc aggagaatca cttgaacccg ggaggcagag gttgcagtga gccaagatag 93000
tgccactgtg ctccagcctg ggtgacatag tgagactctg tctcaaaaaa aaaaaaaaga 93060
ataaaaacaa gaatggtcag agtcctagta ccttgtccag tgtagtgctg ccttgagatt 93120
gcattgcaat ctgtctgaga gatagtaaaa gaaagtgata ccttccttag ccctgtttct 93180
ctttagacta tgctttcccc tctccaagtt aatatctctc agtctaaagc ctgggaaaag 93240
gtgccaattt tgtttttctt tcttcctcac acctcctaga agttacactg ggacactatt 93300
actttttttcc aggctttggc catgtgtatt gttttggaga gtcaacttcc ttttttcttt 93360
cattctgcaa atagttttga gctgtcactc tgtactaggt gctataaaac ttacaggtgc 93420
attttacatg cctatttcct ataggccacg atttaacaaa atgttcataa atgagaatta 93480
ggagtgcatg tattgaatca ccacacatta actgaacagc tttcattggc cagagactat 93540
attgacagtg gagattcaaa gataaactag agaaatctca tgcttaaata actttctata 93600
ataaattata taagagaagt aggttcaggg atcttgggag ctcagaagca ggatgagtta 93660
aacaaaagtt ggattttgcc tttagcttgg tttcattatc ctgaaggaag agcctgaaat 93720
atagtgtagg gtgcaagtag tatatgtggg tggcaatctc gggaaacagg agcatgtgat 93780
gaataaggag aaaaagccaa tataaaggta ctgcattgag ggcaatgagg gctctaattc 93840

tctgcacctt ctcaagcatt gtgcagattg gttttctgga ttatcagcct gaaggacaaa 93900

acgaagaaac agccattagc tcctgtctcc cattgtctga gagctgccac taggatatta 93960

acttcctgaa attctgcaga aatctcctct tactttggca ctggagatgc ccatacgcag 94020

aaagcaaaaa ggcacagcat atttaaggaa gctcataaga aacagtgcat ccagaagtgg 94080

cgagaattgg aggaatggac atgagactct aagaaccagc gcctttgatg ttccttttga 94140

tctgttatgt agctcttctt gtacacaggt gagcaaaggc atgctggaca aatggattca 94200

catgtgctaa agcatggggc aaaaaccaca tattaattca ggaaaagaca agatgcgtgg 94260

ccctctctgt ctctgtctaa gggtgaatta aagaggggat atatgtacag agtggcaggg 94320

caggacttga gataagaagg ctaggtgggt gctctcatgc tagtagcatt atagtacagg 94380

tgatgagaag ctcctgaaga atcatcttaa catttgtatt ttagagcaac agtattgagt 94440

tctgacttag agacagcaaa actaaagaca gaaagactat tttgattatt aatgatgtag 94500

atataagaat atcgtcaatg tgaactaaag catgaagcta cttatgatat atcattaaaa 94560

ggatttaact gattggagac aaacgagagg gatggggaaa agaattcatt tgtttttagt 94620

tgctcttttt ttcctactta ttcctttgtt ccgagtgtga ataaactttg taaactttta 94680

tactaaaaca ttctgctcat tcatacttat ttctttgatg aaacaaggaa acccttgtat 94740

agttataaac gtgtgaatca atttaaatat taggaaattt ttttaaataa agctagtttt 94800

ctgaagggga aaaacttggt tcaatttttt gctggcaatc tgctttgtga tttttgaaca 94860

tgatatctac atctagactc atgttttgct agctggaatt ttttttcaaa ttaacgctac 94920

cattattata tgctttacta tttagctttt gcagccttgg aaatctatga ttaatacaaa 94980

taattctcta tggcaatttt aaaaatacat gtaaaagcct tcaatctaca ttgctactgt 95040

gtcgtagcac aaaaaaagaa aatgtgatca aattttaata aaatctacaa tttattccct 95100

tctaaataca gtcctagctc aggagaaagg aagctatttg tatttttcag aatcaaattt 95160

ccctaaatga atatagagaa agaattataa ctgaaatatt gttgaaacag tggtcatctc 95220

aaatctgaag gtcattccaa aaaagtttct gagttttcat tgcctcaatc taaaagttgg 95280

ccttttttggt aatagatgaa agtaaaataa ttgaaagggt ctgttgcagt tttggaatat 95340

cttgaaaata tagtagagtg aagccttctt cccttaaata aaagacaagt tgctgattgt 95400

tttctttcta gccagataag aataatgcct tctttctctt gttagtctta acacctcact 95460

tgttactatg tgtcagaaag gcgagacacc ataaatggag atactactga tggaggtcat 95520

ctgacatggg gctggtaggc agtgggaaga ctggtatgga cacaggtggc ttaggggttg 95580

gggaatgata tggaactaag gaaatgataa ttagcagaac ccagtgtgca tgtgtgtgca 95640

ttcgtgtgtc cgtgtatgtg tgtactgtag cacaatgcaa gaaagaaaaa acaaggcaga 95700

cttttcataa tttcagggat aaataaatcc tttatcactt catgtagaat attggctact 95760

tggaggtata tctaaacgta aatatataac tatataacta catgctaatt aaaaacatac 95820

aaagaagaag tgcctaaaga attacaacag aaagtggcat agtgattatt agagttaata 95880

taatataaat aaggccaggc atggtggctc atgcctataa tcccagcact tttggaggtc 95940
aagttgcagg gatcacttga ggacagggga tagagacaag cctagccaac atggtgaaac 96000
ccatctctac taaaaataca gaaattagct gggtgtggtg atgggcgctg gtaatcccag 96060
ctactcaaga aactgaagca ggagaattgc ttgaacccgg aagctggggc tgcagtgagc 96120
caagatcgcg cactgcactc cagactgggt gacagagaaa gacccggtct caaaaaatta 96180
aaaaatagta taaataatat ttcaaaacac aagtctgtta agataaaagg tacagaggaa 96240
tggtgagatg actttttat ttgtgtgata agggactgtt ttctgtgatt gtgagaaaga 96300
ccaggagtta agaaaaagtg gccatcaata aatcagccac ttatggggaa gaaccataaa 96360
ccactctcag atgaaataca aatgcagtca ttatttaata ttattggaat atttgtatta 96420
gtttttggta tgtgctgcta gtgctggtac attttagtag tcaattaata ttttgttaat 96480
cttaatttct aactaaattc cagagtgaaa tggaaataat aatgaaaaaa ttttatttac 96540
aaaacagatt ttgtttttt ctgttaagaa tgatacacag ttgtccttca gtagccatag 96600
gggattggtt tcaggacctc ccttgggtac taaaatctgc agatgcctaa gcccctgtta 96660
taaaatggct tagtatttgt atataaccta tgcacatcct ctcatatact ttcaatcagg 96720
ggtccccaac cccagggcca tgaccagtac tggtccatag cctgttaggc tgttcgatac 96780
caggctgcac agcaagagct gagctcctcc tcctgtcagc tcagtggtgg cattagattg 96840
ccataggagc acgaacccta ttgtgaactg cacatgtgag ggatctaggt tgtgcgctcc 96900
ttatgagaat ctaatgataa atgtaatgtg cttgaatcat cccaaaacca ttccccttcc 96960
cctcaccatc cctgtccgtg gaaacatttc ttccagaaaa ccagtccctg gtgccagaaa 97020
ggttggggac tgctgcttta aataatctct agattactga taatgcccaa tacaatgtaa 97080
attctatgta aatagttttt atactatatt gtttagagaa taatgaaaag aaaaagtcta 97140
catgttcagt ttaagtgttg ataagtgtgt agagaaaagg gaacccttgt acattgttgg 97200
tggaaatata gattggtgca gtcattatgg acaatagtac ggaggttcct aaagaaatta 97260
aaattagaat tacctaagac ccagcaatcc ctcctctgga tgtacccaaa ggaaataaaa 97320
tcatcacctc ataaagatat ctgcactgct atattcattg cagcattatt tacagtagcc 97380
aagatatgga aaccacctag gtatgtgttg gtgcatgaat ggataaaaga aactgtggta 97440
tatgtatata caatggaata ttattcagcc ttaaaaaagg agaagaccct gtcatttgcc 97500
acaacatgca tggacctgga ggatattaag ctgtgggaaa taagtccaac acacatccac 97560
acacaaaatt gcataatctc acttatatgt ggaatctaaa aagaaaaagt tcaaatataa 97620
agttagaata aaacagtggt taccggccgg atgtggtagc tcacgcctgt aatcctagcc 97680
ctttgggaag ccgaggtggg tgaatcacct gaggtcagga gttcaagacc agcctgacca 97740
acatggtgaa atcctgtttc tactaaaagt acaaaaatta gccgggcata gtggcaggtg 97800
cctgtaatcc cagctactca ggcagttgag aaaggagaat cacttgaact caggaggcat 97860

aggttgcagt gagccgagat ggcgccactt cactccagcc tgggcaaaag agcaaaactc 97920

tgtctcaaaa taaaaaaaca aaaaacacag tccacacact ggttaccatg agtgaggtgg 97980

cagggaggag attgggagat gtagatctaa ggatacaaag tagcagatat gtaggaggaa 98040

ctaaaaagct gacatgcagg atgacaacta tagttagtaa tagtgtattg tattcaggat 98100

ttttgctaat tgagtagatt atagctgctc ttgccacagg ggaaaaagtg ggtaactacg 98160

tgagatagac aatggatgtg ttaatttttg tcactataat aacctttca ccatatacat 98220

tcatcttata acagcatgtt gtttactgta aatatataca ataaaattta tttttaaata 98280

tctgagtatg atttgatgat ttgtgaaaat agagtgaatt ataataattt taaatgtaag 98340

ttaatgttat tagaaaagaa acagaaagaa cataccacac agaaagtctg tctgaaggat 98400

ctttgttttc tccaccaata caagtgttca ttgattcaga ggtggattat gagatatgac 98460

cataaaacaa aaatttcaag ggaaatatat tttattcaat gaaaaattct caacacaact 98520

gttatatgcc agtaaacact atatctttta aataacaggt catatctatt atatttaaaa 98580

ttcaaggaga gactacatta gagatgctat tagatcaact tctaatttca aagatttcta 98640

agatatggaa cagttactcc ttatacaaat taaaaaagca aatgctgaag aaattcagct 98700

acatggatac accatgaggt ggaaagatgc tccataactc ttagttaaac tgcactaatt 98760

acacataaaa ggaaaatgtt tcatttcact gtaatttgga aaccaaagaa agaaaagact 98820

gaatttttac atactgttaa agagattgcg tatctgttct aagtttaaga cagaggcaaa 98880

atgtatttta ttcatttgtc ctgcaccgtt tagaaataaa attcaacttc cttttaattt 98940

tttttaagaa taaaaaactc agtctaagga aagtcttaaa gttttcattt taagtgatcc 99000

actgttctag aagtttaata ttttgtttaa aatgtttatg ttctgtattc caccaagtct 99060

agttttaaaa caaaacaaac aacaacaaaa tacttctcta acttggagtt taaggtgaaa 99120

gaaaccaatt acgtggtttg gaaatgtcac acttttcatc tctttttaa aaaaattttt 99180

aattcaggac agaaattgta tggatttagt gtaagtcttg ggatctcaca agtgtcagta 99240

tttcactctc ctccatatct tgatagcaat aacttgaaat aggatctcag tagctcaagc 99300

aatactgggc tctgagagtt ggttaaaaat tatttggctg agcgcctgtt gctgagggaa 99360

gaactaatct cgagcatatt tttggagcca aataccaaat tgtttgtgct tagcaacaca 99420

gcaccaggct tgcccttcag aatgattcta gaccaaatgc cagaaatgct ctggttctga 99480

ctacagagtt ctattcacaa atgacaggag gcaagaggtc ctcctcactt tcagaagaaa 99540

ggtcctttgc tttcttagtc aatggtagga aaaccattgt ggttttcatt gcattacata 99600

atttttaagg tgattacttc aataagaagt gctctgtgta tatgtgtgtt tatagacgca 99660

ttttttaaac actggagaat ttctgaaagt agtacaaacc ttgtaatgtc aagtagatgt 99720

gggaaaaagg gagtttacaa cattctctcc tgacattgct ctcctttggc atctgcattt 99780

ttaaaatgtt aaaaatgttt aaaaacgtgt gcttaacact taatttggtg atagttgctg 99840

ttaccaaggc aactctgtaa ctccacccag ataaaaataa atcttgaaga tgagtttctg 99900

tgtctctgag caaatatttt tgtgaatagt agaagcagag aaagttaaag atacctgagc 99960
ttttgatctt tactagtttt atagatatgt ttatagttat acatttttat tcatacattt 100020
tagataaata actttgtaaa gcaattgatt cttcttgtaa aaatcaagta tattcttaat 100080
agactgataa actttctttt tttgagacag agtcttgctc tattgcccag gctggaatac 100140
agtgccatga tcttggctca ctgcaaccta cctctgcctc ctgggttcaa gcaattctcc 100200
tgcctcagcc tcttgagtag ctgagattac aggtgcatgg taccacaccc cactaatttt 100260
tgtattctta gtagagatgg ggttttgcca ttttggccag gctctgagaa acttttaag 100320
gtctcttttg cagccagcta tttgtctacc ttatttcatt cttaatctca ctagccaata 100380
ttttttctgt ttaagtgctt tcagcaaata ttaaatgctt gtgccttcag tcttatcctg 100440
tggaaacact ggtaatgaca aaaacacata tttcaaccta atatacaata gaaacagaat 100500
gccagttatt catggaggag aagaatagac ttctgtattt aaaataacat tttgctctgt 100560
gttttaaaat cattcttcct tcatcaattg taagcatctt gactataatt tatacaccta 100620
aagataaata attcagtagc aatgataact gaaaacagga cacatacaat gaactagcta 100680
aattaccata cattctcatc catttcaaaa atagctctgt actttttca gattttgtta 100740
gaagaatatt caatacaaat ttttattcaa tgaacacttc agatgtcaag attgttaccc 100800
acatggacaa cagtaaccta ggtaaagatt ctgcagccag gcgtggtggc tcacacctgt 100860
aatcccagca ctttgggagg ctgaggcggg cagatcatga ggtcaggaga tcgagactat 100920
cctggctaac atggtgaaac cccatctcta ctaaaaatac aaaaaattag ccaggtgtgg 100980
tgtcatgtgc ttgtagtccc agctgctcgg gaggctaagg caggagaatc gcttgaaccc 101040
gggaggtgga ggttgcggtg agccgagatt gcaccactgc actccagcct gggtgacaga 101100
gcgagactct gtctcaaaaa aaaaaaaaaa aaattttata cctgggctct gtgctcacca 101160
gcagaagggg taacatggct tcttaggaca accttacttg accatttact tctttgacac 101220
taggggtatt cttagatcag caggtccttc cctccactta tgcacatgag gctcacagag 101280
agtctgggag gcagggaatt tatgattgga aacagtatac tttttatcta agaaattatt 101340
aatgtcactg cattcaagtg attaacacca tcaatatctt caagactaag gggattacat 101400
gatgtgtaaa attagaaaac tgtcatctac tagtggctag gcactttaat tatattaagc 101460
atgcaacaag agaactcttc aaatgaatcc atctctcctc tgtattattt ccaacccttg 101520
gatccccatc tgtttctgca gacaacagct atgctgctga atgtcttaat ggtttgctgc 101580
cccaactagc ttcaagatac tgcaggtcaa gcatagcatc ttactcttcc ctgcatctcc 101640
agcacctctc agaatgttgg tcacatagaa gatgtttgct gaggagttga ataagaatat 101700
gtacaaggga cacaattagc attgtttaaa aaagatgtaa caagataggg taaaggaaag 101760
ctttggagga taaatcttta gaacaatcaa taatatcttc tcctctgttg gttagttgcc 101820
cttcaatctc agccactgaa tcaaatacaa cataattact attctgatat gttcttgaat 101880

cgaatatcca ataataagat attcggatgc atagccatgt ctaatatcaa agcccatgct 101940
tttcgctatt attgtactcc atacattagc ttccaaattt atttgcaatc caaatattaa 102000
aagcaagtca taagcttagt atcgccaatg tgatactaag tatccactta ctaaacttta 102060
ttttcaaaat gtggttttat ctcagtttaa tgaacacggc atgttttaat ttacactttc 102120
atattatata gtaagggcgt ggttacagat atgttaattt cctgtgctgc ttcacaatga 102180
tggaacataa tagcaaatga aactgttaat ttgcagatac ccataggcct ttggtgtctg 102240
aatagaaata aacacaccta caactgagag aggaagcatg tgaagcattc cagtgaacag 102300
aggccattta ttcagtcaca gacacaggag aaaaacaaca attaaaaaaa aatctctgat 102360
gaaaagttca taaaaagttc actcagttta agcatatgtc ctataactac ttaaaataga 102420
gttcttctta aatatcattc tttgctgttt ttagatttct tctgcctgta tcaaattaat 102480
agaacacagc atacttttaa tttgctctgg tttcttagtg gggcatttat taaacacatt 102540
aaaacaatag tctcagggtt ttactgctga tgttaaagtt ctgctttcct acttaccaac 102600
tgtgtcatct taaggcacat actttgcctc tctctcaaat ctcccaaatg gagaatgata 102660
agaatacgta cctcaattaa agaagctata acaagtagaa tgtttggaaa agtgccgggt 102720
acaccataag cccactatga gtattggatt gtattacctc tgaaagctgc agaatggaat 102780
tctcaaagtt atatgtccct aaaatcctct taagtgacag aaatggagaa attagcagtc 102840
tgtctaagag agcttttcta gagtctgggc atatgttttt aggacaagac agttcagctt 102900
cagcttaaaa tgagagagca cgtctgtgtc cttactcctg ggtgccaggt ttcttgtccc 102960
catcttaaga caaataattt tggtggagaa gaggcagtct ctttgatttc gctctaaaaa 103020
ccttttctgg aggaggtaga cactctccac ccccgttttg agactcatgc agctgaggat 103080
gactggctga gtacaagcaa ttgttccttc taagcagttt caattcttat aacttgtgga 103140
gatattctta agtccagggg attttgtgta tggtggattt ttattacaaa gtcctgtact 103200
tcataggaac aaaataattc aaagtcagga accagatcaa agccacaact cagatatggc 103260
accttgagaa gttcatttgt atttcacttg cataaaaacc ctcaccactg ctatctgatt 103320
ttcacaaatc attcaacagc tatccatgaa gcacccactg tgtgtctggt ctctgtgtca 103380
gtccctggct tcatgtgtct ttccttctgt accctgactc cccaactcat gaacacatga 103440
agtaaaaaaa tgaaaatctt tttctgacct ctcttcaaaa tcacttttt caaaacaaac 103500
acctctcacc tgctcatcct ccagccagta aatcacaggg gcctagaaat gtcacttaca 103560
aatattttct gattctgtcc ctcccttcaa gcttgccaac attatcacag tttagggcct 103620
gctcatcttt cccccaatct ccaattagat ctctccacaa tgcaattctg cacattccct 103680
gttacaaccc ttcaattatt tcccagccca tccaaaataa aatctaagcc tcttactaac 103740
acattcagga actctgtggc ctacggtttt ctacagacta attttccagc agttgacttc 103800
cagtgcaagt gaaaacctag tgtcatgcct gcatgataga taaatttgaa gctgaagagc 103860
ccaaatgtat agaccatgcc atgaaaggtt tatagtcatg acacagtggc cctatagtac 103920

agtgcttgaa gctggctctc tactgtcaga cagaccactt gccagccatg agacctgggg 103980
caaaatgcct taatttttat gtgcctcaag ttctcatgtg agatgagaat aaaaattacc 104040
cctatttcat aagatttgat aaagtgttta gcataatacc tcataacaat tgcaattcag 104100
tggtggttat tattataaag aaaagatgat taactttatc ttaatgttta acttgttctg 104160
atagttattg atctatagct ttgatatgga ggtttgagaa tgacctggaa agaattggcc 104220
acaatgattg aagatagtga tacaagaata aaagatgact gcaaaatgta aacctgcaat 104280
aacagaaaga atgaagtcac tggtctcatg ggaactgata tgggagaaaa aaacagatca 104340
aaaggctatt catgttttgg gcctctttgt caaaatggaa atgagaaact ggggaataaa 104400
aattaaagca attctagcat ctggttttaa cataattctt atccctaaaa agaatctata 104460
agaaactccc aaaatgacag gcagccgtgg gtagcattgc atttcaagta atcttttaat 104520
tgttaaaatt taagtttcca acatgaacat aaaattttca acctaaaaga aatgagttcc 104580
aaatctgaga caagtgaaaa aggataaagc ctactagggg gtaaattcca tctctttaga 104640
gatctagtac ccaatttagc aatgtccaat caagccttta actactacat ttgaacacct 104700
catcatttca aaatgttact taatgatgcc aattaactgt acaatgtctc tgcatagcac 104760
atagccctaa aatgatttgt gcaatgttac tgtcagtaaa actgaactac agggaatgct 104820
catattctat gtcattatat acagaaatgc aatatcaata aagtgatatc tgttggtatt 104880
agaaaaaagt gaaaattttc atatctttct attttctttt ttcctcaatg ggatgctctt 104940
gttaaagata gctctgcata gtaaggtttg tataaacatt atttagctaa agttaaaagg 105000
ggtaacatac tggttctagc acagatatta aaacaaatta gtttgtaggt agggcagcaa 105060
tcaattatat tactaaccat agctttggtc cttttatcct ttcccatttg attttacaca 105120
gtgggatgtt aaaggttgaa tgtctttggt atctataaac ttaattgaaa gctgttattt 105180
gtttgtttaa gtctgttgat ttttataatc ataattttac tcctatagat ttcttgtagg 105240
agtactatat gaatttatgt tgcactgaat tttgttatgt tatacaaatt aataggcttt 105300
tatttatgga aagctactat tgatctgtca tttcttaaaa aattactaaa aagtgttaaa 105360
actttaaatg ttggagagtt tatattttaa aagttacatg ctagaaaaac atgatgtctg 105420
agtatattag aagttataga taattcatct gtcaactata aaactctcca acactgcctt 105480
tctttaatga ataatatgaa atttagcagt gaaaatgtga caatgtacaa tcctaaataa 105540
atcaacaaat ttagagatgt acctctaaaa ccattgtaaa ttcaacagtg taattttcca 105600
ttggactttc acttattcat tcattaaaca aatgtttgtg agtgcctgca atgtatgaga 105660
cattgtactg aagctaggca gtgtgagtta tcatatggga ttatccttta aatacttctg 105720
agggcaaaaa aaaaaaaaaa aagaagagaa aaggtgtgag gaaagataaa gggttaattc 105780
attaaaaaat aacacttgag gactgttttc tttgcaaggc ataaagttat caccctttca 105840
aacagtagat atttcacatt taggatgcga gactccagtt ccaacaaagc tcattgcaca 105900

gctgctaccc tgattaaact gctacatgaa ctctgagcaa tgtagcatgg tagccgcatg 105960
cttctgcttg catgatggtt aattccttcc attctcatta gtgattttct gagctttgaa 106020
attctgatgg tacctaggat ataaagcata tttatctaac tgaaaaacag ataattagat 106080
gtaacataaa atatgaatgg ctttgtcact ttattgtagc agagaatgaa tgtgggataa 106140
attaaagctg atgctagaac atatgcctat tttttagctg gaaaatttca agatttatgt 106200
actttgggct tgagaaagaa atggagttta ttttttatgc actgacatct ctttttttt 106260
ttttttggaa gagctctctt aggaatgaat ggtatgtaaa tacagtagga atgtaattat 106320
agattttcct gacccagttc ctaaataata gatatcattt cagaagtgcc ccaatacctg 106380
acctttttgct ccaagccata tcaaagcaca catctagtct acttttcact ctcattccta 106440
gccactatga caatactatt cagataaaac ttctagtcct ctacttatgt gactcatacc 106500
aacttgacct tacgatagtg actgggggtg catatctagg ttcatgctgt ttgtccatta 106560
ttatggtttt gtgagaaaag gcaaaatttc taggtaaagt gttatgagga cgaataatcc 106620
accaggcaac caactgaccc tttcatttgc catcttgtca cttcaaacag ctctccagaa 106680
cctgcagcca gcacagacca aagtcaggtt tgtctcctct tctgttgatg aacaaaggtt 106740
gattccatat cgtggctatt gtgaatagtg gcagtaaaca tggcagtatt gtatgaaaat 106800
atcacagata gcccttaaat atgtgcaact atgatgatct atcaaaatta aaaattaaaa 106860
tttatttttta aaagttcagt tagaaagctt gtagttcctg gcaaactact acctttctcg 106920
gcaaaagaat ttgatatctc ttaaatattt tctgcctaat gctgatagat tgtatttaca 106980
tattccatta atgcaataaa taaaattaca ccaaaacatc agcattattt atttccaggg 107040
gcatctctca aaataaattc ctccaaaatt cacaaaacca aaaccaatgt gaaattgtac 107100
tcagggatgc aaatgtagcc cagtgaagca tttgcccact tgtttggtat tattgaagca 107160
caattagaaa aatgtgcaat gtatgcccaa aaattctata ataagggcca ggcgcggtgg 107220
ctcacacctg taatctcagc attttgggag gccaaggtgg gcaaatcatg aggtcaggag 107280
atcgagacca tcctagctaa caccatgaaa cccagtcttt actaaaaata caaaaaattg 107340
gcccagacgt ggtggcggga tcctgtagtc ccagctactc gggaggctga ggcaggagaa 107400
tggcatgaac ccaggaggca gagtttgcac tgagcctact ctccagcctg aacgacagag 107460
cgagacccca tctcaaaaaa aaaaaccata ataagaactt tttaatatac tatattataa 107520
tgtaaaaaga ctagatgtca aacaaattag gtgatgggaa ggaattgagg gagaatttta 107580
gactaagcaa ttgagcagca cctgtttttc accacaaatc tgttacatgt attgctcaat 107640
tgtgctgaat ccatattggg tcctggtggc tatgtaatag tctctttctt ggataaatgt 107700
ttgtcctctc ttatggttta ctaatggtgt acagaacagc attgaatagt ggttatttcc 107760
tatgacttcc tagatatctc tctcataatc ctgaatgttt taaagatcat tcttagatag 107820
agtacagcta gacacgaacc atagtggaaa tcaggtagac aaaatttaaa aggagtctta 107880
attgaaggtc attttattgt cctcagtatt aatcttactt aaaacaaacc tgtcactgag 107940

cagaactcaa aacaccagag ccctttgcca aatgtgattt tttacaacag gagcgctggc 108000
agttgagagg agtattctgt cacacttgag agaattcgag tccctgaaga tttatatgaa 108060
tgcttagcta ttatcgaacc atctcttcac agatgactta gtaaatgtct gcctttgcat 108120
cagataatgg cttacaagtt aatctcctct tgctccctgt tacacacata tacaccttct 108180
tcctaaacag ctcataaggt gaaagaaaga ctcagatttc tgactatgta attgataata 108240
tcacacggac tgcctgctca tcatctgcta gtcacattgg cagagttgac agttttggag 108300
acactgaaga cagtgcatat attaggaaat aagcagtttc ctgatataaa ttttcttgta 108360
gtttataaat tacatagcat ttattattcc ctcatatttt ataacattta ataatagaac 108420
tgacacatat attcatttta aactcaattg tgtataataa ctatcatagc aacccttcag 108480
tgcctaaata tcaaatcttc cattcctccc atgaacatct tgaatatata ggtactgtgg 108540
ttagctccaa caagcttttg gttagaattc attgcactga tacatagaca ttgttttaaa 108600
ggcaatttca aatcaaagct gtcagctgtg aatcaagcac accttaaaaa gtgacacatt 108660
tgtcactaga ttccagcctc tcaaattact gacacgcatc ctttttatgt aaagatgaca 108720
ttgttctttc ctgatatatt gcattcctca tgaatttctt atagtcatag aatttttata 108780
aaccatttca gaatcgctga ataaacatc aatattttta acttttttcat tctgtcaaaa 108840
atattgtatg cagagatatt gctgtaagtg tgtatacctg tgcttaagag actagggctg 108900
aagagaagta atcaaccgaa ccactggtgt aaatgtgcgt cacattttta gtgactagaa 108960
attgaaataa ttccaacaaa tttatgtgct ttgggcttga gaattcagac tgccttaggc 109020
taagataaaa atcttttcct ggtactatat accttctttt attgaatgac tacctggctc 109080
tttctattat atatgcagat tttgtacctc tggtcatctt tgtaaatggt gcctaaaaga 109140
tatttgaaga ataagtgacc agcaataaga acaaatgtct atacaaaagc acccttttagt 109200
tggatgtaat tcactacttt gagttgttaa taacctctaa ggatgacagt agctattagt 109260
tgaataaacc attatgtcta ttattagaac actagatagt ttataagtcc aaacaatgca 109320
taaaatacct atctcatgtt accattgttt aggttaccag ataattgttc tgtccaatta 109380
ttccacttaa ttttttgctt gcccattagc taaatggcaa gataaaattt gtcaaacggg 109440
ggggaatgta ttgaaaatgc tagacaacta cacttaaaat gaaaacaggc caggcgcggt 109500
ggctcaggcc tgtaatccca gcactttggg aggccaaggc gggtggatca cctgaggtcg 109560
ggagttcaag accagcttga ccaacatgga gaaactccat ctctactaaa aatacaaaat 109620
tagccgggca tggtggcaca tacctgtaat cccaactact ggggaggctg aggcagaaga 109680
atcgtttgaa cccaggaggc ggtggttgca gtgagccgag attgtgccac tgtattctag 109740
cctaggcaac atgagcgaaa ctccatctca aaaaaaaaaa aaaaaagaaa gaaaagaaaa 109800
caaatgcata atttgcaaat attattttta tattgtatgt tatctagggc ttctaaatgc 109860
attcttctta taagcctagg tttgcaataa cattcattta gaattgagta attttaaata 109920

taatatttta taaaataaaa tataataatt tctcttaatt ctttgaaaat attaaattaa 109980
aaggggttg caaactctgc attccacatt tccatcccaa catttaattt tagcaatttt 110040
gtagtctgcc taaaatgcaa tccatcattt actgtttaga aaatagggaa tgtacacaaa 110100
ggcctttcag ctttccctga actccataaa aatcttttg cttctttact gccccccttt 110160
gtcaggagtt ctgaggaact gtttttttatc ttaagtctca caaagcattt aggagaatat 110220
ttaaacttaa attcttttaa aacttatgtt caggacaaag taacattgta tgcattggtg 110280
tcatatgtat ttaaattttg aaatttttaa tactggcaaa atgaggtttc aattttaata 110340
taaattattt aacaatctta aatcattaaa tatattactt aatatattta atatatctaa 110400
acagtcacaa ttttcccata ctaataatca taaaaaatct tacccaatgg tcatatagat 110460
atacttaatg gagttttggg ggggtatttt tgtatattaa aaaattcata tatttgcctt 110520
acttagaaga actgattaaa tgaaagtata atattaacaa acatattgtt attttatatt 110580
tgcatttgtg ataattatat ttgaaacgtt caagattttc caatgaattt cttttgcatt 110640
tgcgtatttg tgccttttta ttataaaaat aggtggcttt ttagttccac tgcataagtt 110700
tcaacatagg tctacaaata gtgcatcttt ttgaagttaa tcattataat cacaaattga 110760
agttgcctga gctccaattg gagtctaaat ggatgactga atcttattat tcgaaaccca 110820
ctgttgctac acaatatggc cacacaagag agtacacaag acccgtctga ttcagcctca 110880
gtgccataaa tattttaatg gtttcgttgg aatctggaaa tggagctcac cacaggagat 110940
gcttcttcct ttgactctca ttattatttc ctttacaaat taattaataa aaacttagat 111000
gctaaattag cacttgatga aaacttatat agccttgaca ttttgattct gtgagtgaat 111060
aaaaatactt ggagaaataa aaatcctaat catgttcagg aatacccaca aggtaacaag 111120
tacatttta aactttaaaa acatttatta ttcatgataa aacatgttgt gtgatttaaa 111180
tataaatttt tattatttgc tttaacttat ttccggatta aaaagtaaat gtttacctag 111240
ctgttctaaa tggtaatcct catgattaaa acagcaattt gtcatatttc agttacaaat 111300
gatcttttat tattagttat agaacataag tttcttcatt gactgaggcg atgtttcaag 111360
tagataaatc tgttaaaaaa attgtggtca tattctgtta aattctcata ccaggcaatt 111420
tgtttgatat tcaggaaaaa cctagccact gaccaaaaac tctacctgcc ttctcagttg 111480
tatcctcttg gacttaaagg ggactgggaa agttataaga tggttcatga tagtccatca 111540
acatcccaag aacaaaaaca gatgttgtac tgacagcatc atatgatcat atgcatgtaa 111600
gagcacattc atattgccaa atcagttgga atttttcacg gttgaaagtt aaatgaaatg 111660
cttagatgta tgagtcatcg gagttaaaga caattacagc cagatttatg gctgtgctaa 111720
aataaagcta gttagaaaac agaccaaatt ccatgacgat accaagtctg actaatgatt 111780
caccttaaat ttcggagcaa catttatcct cacttgtttg tttatttgac aatgtgccct 111840
tatccattaa gtaactagga ggaagggaaa agcactacgt gggtgagtga caagacactg 111900
acactgattt gtgactttgg ataattcctg gatgctgtta tctgttttgg catagagatg 111960

gatctgtaac tgctaataat tgccgactgt gaccatccca gaggccattt acttaaccca 112020
ggtatttcag acctgacagc ccgaggataa acacgatttc cctccatcac taacttcatc 112080
tgcagggcct aagcctcctt cacagtctct ccagtgattt attggcatct ccaagggtat 112140
ctcacatgtg ctgaagaaca aatctgctca ctttcatctg cttggttttc ccttttgaaa 112200
tctgctgctt taaaattact aagggaggaa tcatgcctgc tgctaccctt gccagtgacc 112260
ttgcagtttg tgccctgatt gttccaatta ccacaatcaa aacagaagcg tttgcagtta 112320
ctgcagtgct ctctctgtgg atgtcaggtc tgactcagag agccaggctg gggaacagcc 112380
atttccactc ttgtacctct gcaaaaggac ttccatgttc cgtaaacaga ctcccacctc 112440
tcattttccc cccaagcaaa gcatcataaa ttagagagca tgtaacggga aagaaaatcc 112500
attagccatt tgggttcagt cagacaagcc agctcatgga aagtttatac aggaaggtca 112560
catttcaatt gagatcagga gggtgaaagg gtccagctgt gtgatgagag agagaatgtt 112620
cgggaatgtg gaacagaggt atccaaggca gaacaaactc gtatatgaag gctttaaggg 112680
tgtgcaaatc tagcatattt tatgacataa aagagtcctg attagctaga atatgatgaa 112740
tgtgagaaga ggtgaaggct ggagatagga aaaattattc cagatcttat aagctatagt 112800
aagaaatttg catattatat atagacttgt gggaagccat tggattttgt aagaaggaga 112860
ttaacattat cttatttatg ttatttgtga tttataaccc caaatgtgcc agatacaaac 112920
aaaccaaaaa taataataat aataataaga agaagaacaa caacagcaat ggaactgtgg 112980
tgatggtttt ggtcacaaaa tgcatatata tctatttttc acaatgcaaa aatatttcat 113040
tatttcaaat tttaacataa atgtgggtat gcatgagctt acaaatcttg aagtttattg 113100
gggaatattg gtgagcatgg tttttattgc atggtcacaa cttactaatg ggaaacatct 113160
gaatacctat tgagttaatg catgcacatt tttattttcc tggaatactg agaaaaaggt 113220
tgctacataa tgtcttgata gcttctaagt catggctcaa aagtgaatgt ggaatctgct 113280
aatcggaatg gactcagatt cagccaagtt ctcaaaaaca tttgctttca tagatgtctt 113340
caagaaacaa ggagtcttga atttaaattg tgaagtgtct atcttagaat agagagattt 113400
aaaatctgac tgtattttgt ttaaaaaagc ctatataact gtattatata aaattattta 113460
tactacagtt aaaaaaagaa tcccatccta tttgtgccta ataagtgcc tgcttgtagc 113520
atgaaaacta tttgttgagg gtccttagat cctcagagca tgctgtgaaa gtaggtacaa 113580
ttgttctttc tatataagcc tcttaagata acagataatt gccagaaata cagcacacag 113640
tacaaaatta ccttgtttta cttttgccac aaaaaacaat ttcttttggc tttgagcaat 113700
aaagtccaat gatttttttc ctttcaaaat atcttcctcc ctctccataa gttttatatt 113760
tattcacgaa ggaatattcc aatatcggat gtttttgtct gtgtctcttc ctggaacaaa 113820
tgttaattaa tctctttggg tttgtatgtc aagtggaggg gtggggattg gggacaggtg 113880
atagttgtct agggagttaa cttcatctct ataggagagt ggatagacgc tgtatacgaa 113940

aagctcttga aaagggaaat acagcagcca cttcctcagg gcttccatgg tggtcagact 114000
ccttgattgc tttagattaa ctctggcttt tgtccttcgg aggccaccag attgggtgga 114060
tagacattgt ccttgctgtt cttttgacct acctacttgt actttagggg aaaaaaatgc 114120
ctgtaatagg ttaaatgctt tctcaaagat caccaaagta tataacacat ggcaaataga 114180
cagagaaatg agacagtata atcagtataa tttataaaag taccttacag caggatccca 114240
tgggatatgg gttttttta aaaaaaatct acctaatctt ttcattgaac tcctattcag 114300
gattcattat attgaatatg gctcagagac ctggaaaatt gtttccacct ttttaattta 114360
ttcaccatca tttatggaag ttttcaagga cgtttactta cctacctcag ttaacagatt 114420
gtactacttg ggaagtctat aaatatgagc ttaaagcatt ttctgagttt taaaataatt 114480
tagattgtgt agaatgttaa aactaaaaga ggaaaaaatt attcagttcc tcagttgaac 114540
ctagcaattt atcttttcac agtgtgctca agtatagttt ttgaaaagta aagaagatgg 114600
tttttataca aacataaaca catttcaaag attttattca actaattaat tagtagtgga 114660
gccaataagc tggtaagact ggtttaaagg aatatctgag gaataaagat ttatagaaac 114720
agtcaaagaa attctaaaga gaattgacta atagatataa atctagtaaa tatttgatta 114780
ataatagcag taacctatgg aattatgttt tctactgagc ataaatgagc atgaatctct 114840
ttgggtttgt atgtcaagtg gaagggtggg gattggggac aagtgatagt tgtcaaggga 114900
gttaacttca tctctatagg agagtggata gatgctgtat aagaaaagct cttgaaaagg 114960
gaaataaagc agccactgca catctgcaca tataacctgt agatctgggg gctctaataa 115020
aaaagttaat ggcaatgtca aaatctggtg ttttatctta gataacttca tagtcattga 115080
ttgagcccct taaaaataac atttaaagga catgtagtca ttctgtttct ttattgccaa 115140
gttttcagca atttttctca tgagaatgag tgctaagaaa cttttggtgg agcgtggtgg 115200
ctcaagcctg cagtcttgca ctttgggacg ccaaggctgg ccaattactt gagatcagta 115260
gtttgagacc accctggcca acatggtgaa accttgtctc tactaaaaat acaaaaaaaa 115320
aaaaaagtgg gatgtggtgc atgcgcctgt aatcctggct actctggagg ctgaggcacg 115380
agagtcactt gaacccggga ggcagaggtt gcagtgagcc gagatcctgc cactgcactc 115440
cagcctgggc tacagaggga gactccatct caaacaaaca aacaaacaaa aaagaaactt 115500
ttaaaatata acaatagaga cattacatag gcccacaaaa ccacctccaa aaaagcattc 115560
tatcacctgc aagaaagcat atatatatat ctgcttttgt gtatatatat atatatatat 115620
atatctgctt ttgtgtatat atatatacac acacacacac acatatgtgt gatatcagca 115680
tgtgtattta cacatatatt ttgtgcatgt atatttttaa ctaaaaatgt gctaggagtt 115740
agatatgaac tgattttgga ggaggtgata tgctgtagag agagagaatg ggagaatagc 115800
agtattataa tctctctcca ttgtattcag ttttttttctt tgtctgaatt tttaatagaa 115860
gtcagccaga agatgttagt ttctgggaaa tgtgttgaga tttacagtca aatccagaga 115920
gaactagagg cttatgagta aataagtaaa ggttatgcag agaaagtatt ctttttcctg 115980

tgtaaacttg aatattggcc aggcgcggtg gacacctgta atccagcact ttgggaggcc 116040
aaggcgggtg gatcgactga ggtcaggagt tcatgaccag cctgtccaac atggtgaaac 116100
ccattctcta ccaaaaatac aaaaattagt gggtgtggtg gcaggatcct gtaatcccag 116160
ctactacgga ggctgaggca ggagaattgc tttaacctag gaggcggagg ttgcagtgag 116220
ctgagacagc gccattgcac tatagctacg gcgataagag tgagacttca tctaaaaaaa 116280
aaaaagaaaa gaaaaccttg aatatttctt gtacttgtgt tcaaatcata cagttatgaa 116340
agtttacccc tagctgttac acttaaaatg tacttctgaa atatacagag agatgataca 116400
gactattaat gagttccact aaacttttaa tggtttagaa aatacaaata ttttcttatt 116460
tttctggaat tccagccatt aatgtaaaac attggtttca acataaataa cacactggca 116520
tgcacatatg cctaagcatg ggcccccaca catacagaca ttctgaaaga ccacttttta 116580
aaaatattca gtaccgtata ttgtgcattc cttctttatc cacatactta agctgctgca 116640
agcatcccat tgataacacc agtaataaaa gatgggacca tcagtaatga gatttgaaag 116700
ccccttttgc aagaaagtaa ggactagaag gtggaaatca ctctgtctta gagtcatatg 116760
gattggggct ttgctagaag tgtgtgctct cagggaaagc tgccttttta ttttctccag 116820
agaaaagcct ttttgtcagt aaaagaagat gtatcatcca atgcatatgt aaaattctaa 116880
acagcagata aaacaacatt cactattaat ctctgcaaaa gaagatatat tgaaaaaatc 116940
ctcaagtgtc cctctttggg tttctttgtt atatattaaa gcagttatct ttagatgcat 117000
gagaatcacc tgaagacctt atttttaaaa ttcagattcc tgtcagttca ctcccaaaga 117060
ttccgattca gtagttaaga gacaaagcct aggaatgtga atttacaatc aacacctcag 117120
gtgatagcca tgcatgttct taatgctcta ctactatcta tgcataaaag gaagataaag 117180
ttttaaaaac ttgaaatgtg gtataacagt ttagtattga ataatataca tttttactta 117240
ttgtaacaaa ttatgatatc tacttggggc aacagtatct tttattttgg atctgaatcc 117300
taattttggc taggtatcac tgagggattc ttagtctaaa acaattaaat ggagttagtg 117360
gtttttttta gtaactcttg attttctgtt ttttttccatt ggcatcttac aaaatttatt 117420
cattcatttt tccctttttc acttggcatt atttgttaga cagtggacaa aagaactata 117480
gaaagtagag aagcatgtga tgttgtcctg ctcttagatt ctcgcaactc aggagaggac 117540
attcgcttac accaatcatc tcaaaacatg gcagtttatg ctgaactcag tccaatggga 117600
gagcatttga ctgagcacat agggagagaa gttagctctg ttgaaggata atcaacgaag 117660
aattcttagg aaaggtacag tcattcattg aatatttgct cggcacttac taggtgcata 117720
tgtgcactaa gatctaagga tgggctgatg aagaacccag gtccctttc ttctagtgga 117780
catgcagact ggcctaaaaa aaaaaaggta actggaaaat ggataaggaa actgagtcac 117840
tcggtttatt tattatcact cggtttattt gcttttgttt gtattttcat tttgacacag 117900
cacagtgtca tcttaacgca tcctccaaag tgaaggatgg ggtggataac actttagttg 117960

gcatttctgt agccaggagc caggatcttt ctcccataat tgcattaacc tgggaaggca 118020
ccctctaggt agatttgtat agcaccctgg ttaatcaatt atcagtttac ttcttgtctc 118080
actaagcttt aacaccttac atttatgaag cagtgtaaat ataactttag catcttgatc 118140
acagcaagca cctgatttgt atttttttat tagctcaagt gaaatcagat cagagaagta 118200
cattacaggt cataaaatat gtgcaaattt cataatgacc tccttttaaa atgtgcaaaa 118260
ataagattgt taaggcacat tccagagcct tgggggggtgt gtgtgtgtgt gtgtgtgtgt 118320
gtgtgtgcgt gtgtgtgtgt gcttgtcttt tgagaatatc tgtatatcag aaaatttggc 118380
tgagaagcaa tcttcttctt agtggttctt tttctctttt gaaaataaag tactaaaaat 118440
acttaaagat gcagaacagc aacctgttcc cagtgagact ctcgtttaat taatgtggtg 118500
atctatatag agaaaaggga caattgcaaa agtccctcaa taattatcta accacagtct 118560
ttaggtaatt acagcagaaa gattttcaag acacaaaaca ccctggaaaa tttgacctct 118620
tattttgatt caggcctttc atttcttaaa tattttcttt aatgttgatg tttatgcttg 118680
acaaggtcag cctaatgcca gatgaatccc tggaactcaa aacattgctg aattcacagt 118740
tgaaggattt taatataata taccagcttt taaaaatcct acagtgagaa taacaggact 118800
gaataaaaaa attaagaaat gctcaggtag aaataaatag agaaatttag aaaaaaaata 118860
aaacgtattc aaaataagta ttaagcattg gcaaagaaaa aatagtagca gacaattaca 118920
tgttccattt gtaaagatga ttattaatta gtggtcttgc aaaacattgg agaaaatttg 118980
ctgaaccatc acattcataa atattaaaac cacccattag tgaaaatctt tttactaaac 119040
ttcacaactg atagtcaaat aatgttcagt ttttctccat tgcaataaaa aataaaggct 119100
tttgccttca gatcagtctc tgggccttat taattcagtc agccagaagc cacatggaaa 119160
tattttgttt tgttaaaagc cagcttgccc tcatgatctt ttaaaatctt ttaaaaatct 119220
tccatcagcc ctctccctga cttgaattat ggcagtgctt tctaaactgg taaactcaat 119280
ctccttggtg tgcctcaaga tagagtacat aaaccctcct tagaaattga gctctcaatt 119340
ctaaattgca ctctccatga gagcaagcaa gaatgctttg ctttgtatta agtggtcaca 119400
atattaaata taaccataga cagcactgta ttttctaaac accttatttt cttttaatga 119460
ctgacataaa ttagatcata agtatacaaa tgcatatctg ttgtattttt cagcaccatg 119520
tgttttttt tctttttct gagttatttt cctgctttcg gcagcctttt ctctcaggtg 119580
ccttgtgatc cacagtggtg tgtgttcaca ctaaccaaag caatagtctt acctgccaga 119640
aatagctgtg acatttaaag agaggtccag gggaaggcac agtgcttaac atccaagtct 119700
gaagagctaa tagtgaaatt ggggcatcag ctacagagag atttagggga agtaacaggc 119760
aggttaaata ttttatggaa atgatttctg ttctgtatat gattgcaatt aacacatgtc 119820
aatctgtttc attaatttgt taactcatct attatgctat gccatgaaga aaataaaatt 119880
ggagttcttt atttttttga gatggagtct cactctcttg cccaggctgg agtgcagtgg 119940
caggatctca gctcactgca atctccacca cccaggttca agcgattctt ctgcctcagc 120000

cacctgagta actgggacta caggtgcgtg caaccatgcc tggctaattt ttgtattttt 120060
agtagagatg gggtttcacc atgtgggcca ggctggtccc aaactcctga cctcaagtga 120120
tccgcctgtc ttggcctccc aaggtgctgg gattacaggc gtgagccacc gcgccccgcc 120180
acaaaactga agttctaagc ttcagtttag atgctcacta aatgcttgtt ttgcaatacc 120240
tgactgtaac tggcaggaat atgttttgaa agtcctcatt ttccaggtat gcagatgaaa 120300
tataggggca ttatctacta tgtcaaatta taatgattta tcagtggcac atgaaagtcg 120360
cctcacattt cttaatcagt gatataccat tatgtcatgc cacctttaa tgtaatatgt 120420
ttacatcttt ctttagatgt aagcattcat ttagttcatc acggtggctt tcacacttac 120480
tccaagaacg ctatgagttc ctttgatgtg ctcaagtctc ctgccccagg gagaaaggga 120540
gtggtgagca ggaatcgctt taatctattt acacagatat tttcttttcc atttatttta 120600
aaggaatttt ttttaactta atgagtatgc agtgacggtg gtgatgatga tgatactaag 120660
gtttaaatga ttagatagtc aaatctgggc tggaattgta atactgtttt gacttttaat 120720
cttagagaag ctccagtctg cttatttttct gggcataaac acatgagaac aataacacag 120780
ttctgttatc tgaatgttgt tatattttgt ttgaaacatt cagtgacttt caaatattgt 120840
atttgcctaa gaaaattcaa cagagtcaga cattctcttc caggttaaat ttggtgagtc 120900
tgctaggaaa ataaattttg tgcactggtc attctgatct agtggacgtt ctaataaaag 120960
caccttttgtg ctgcctacgt cttcacttta aagataagat acctgggtac tcgacaccaa 121020
attatagttt gagatctcaa aaatgggata gggaaaccac agctcaaaaa caaaaatact 121080
agcactggaa aagatagaac tagtgaagat gaatcattct ctagacttta aattcagaga 121140
tatcaaaatt aagaaaaagt aggaggaata aaaaaagagg gtaagcaaaa caatataagt 121200
ttgtatagca agagggtata aagcaaatac aatatttttc agaaaaatta aataaaaata 121260
gatttacata acattgtttt taatctcaaa gatcaaattt caattttcat ctcattttaa 121320
aacccatatg cacagtctcc tttatataca tcagttgggt gtcaaagtga ctttttttctt 121380
gtttccaaat acagttattt ttaaaattta attgtatgat ttaggaattt gaaagcaagc 121440
cagtttgcac acacatatgt tattatatgt gtgctttaga cttggttttt agttaatgta 121500
acatgacagg gccacctgag ttatttgttt acaaactagc tggaaagcca ccctggagga 121560
gaaacctggc aacaaaatgg tctgcagctt tgttattgtt atctatagga ttggatgcca 121620
ttattgctgt aaaatagttc acaagaactc agtctatggg aaagactcaa aaattctttg 121680
cctgttaaag aaaaatcagg atattggact ggttagttta actaaaaagt gatgatactc 121740
agattctgct tggattcact gcttctcagc agttgttttg tttctttcta attgatattt 121800
tatttttcag agaacccatt ataaaactct tcttcttccc ttaaaatcac aaccacacaa 121860
cagcaattaa aacatgcttt gacgtaagac tgatatggtt ttaaacccag cttgactatc 121920
gaatttttta ctttaggcaa aacacctctg acatttatgt cttatcgtca gtaaaaaggg 121980

gtgattaaca gttttacaag attattcaat aaataaatat aaattcctcc ttttccttcc 122040
tttccttttct tcatcttcag catctgcatg ccataagctc attttagttc tctggactca 122100
tgttaacatg tcccaccttt cccaaattaa acatcatctc tgttattggc tccattcttt 122160
tcctctcatt tgagacaatt ctttatcaac caacaccctc tctgctctgt attgtgaaac 122220
tctgctccta ctacattaac agtctcttgg tttctttaaa aagaagacaa aacaattaaa 122280
gaacagaagc aaaaaatcta ctcaaatccc caattgttac cctcaaaatt aattgtccca 122340
cccctagctt tctcattgca caactctttg tcaaaatgtt ttctaccatc acagccttca 122400
atgatctttc tggttccttt atctcctgaa gtctgacttc tacctccatc tttttctgga 122460
ctattcaaca cactttgaga aaaaacatac ttttgttaaa caggtatgca tccctgaagc 122520
ataaaataca tagtactgaa agtgcacatg tgtggttctt cccatttttt ttacagcact 122580
tgaaactgac aagtagtagt accaattact tagtaaaaga ccttttttcat ttcatttctg 122640
aaatattgtt attttccttt ttcatcttcc atctctgact acacctccaa ttttacctct 122700
ttgctgcctt ccttcctaag aaagttcttc atgcaatgcc atcttgtttt tcttcacttg 122760
cctcttttttc tcactttaat tttatgaact ctgatgactt acctctgtag tgtaactact 122820
caaaatatgt atttctgaag tctcaactcc aatctcatat tttcaactta tatttatgga 122880
ggcatctcag actcaaccta cctaaaaaat ggcttatctg ccctaaaatc tactttgttc 122940
ttttttttctc tactgctaat aattatcttc ctagttggtc aagctcaaaa cctaatcatt 123000
tttactcctt gtccctgtgt cagctgtcca cattcaagca gcgtatcatt tctgcacatt 123060
tttcaagcaa gtcagtaact gccttttgtt tgggactgtc ttttcatata gtgaacagcc 123120
ttggaagata gaaatcattt ctccttctaa aacaaaaggc aggtgtgctt gcagccttgg 123180
atagaggtag tgcctctttc taaagcaaag ggacatcttt actggccatt ataaaatatc 123240
catgtttcct gagctctgcg ttcctctttt ctaatgcaac ccactgagca tgtaggtgtc 123300
acctgagctt ttctgtggga attgcggctt gaggaatcag tgcaagaaaa tcatgatact 123360
cttgctaatg ctattaatgt gagtagtaaa gttaattgtc tctgacccag cactattgtg 123420
tctttgccca gcactcaaaa gactggcagg cttgcaagta ggacaaaatg ttagattttt 123480
cacagttctt ctgcttataa gtacttgtta aaaccaatta aaacacaact tgtagtttgc 123540
acctataatt ttgtagcatt tgcttcttat ctatgtcact aggatgtgct tagtgacaga 123600
cccatctatc atctattact caagtttttg gctgtattcc taggcaacag agagaagggg 123660
aacaaacaag aggacctgtg cacagtttga gaaaggcaaa acaccgagct taattgcaga 123720
cttgaatgta gctagcaaac gaagtaaggc aaaaggttcc ttttttttttt ttttagatgg 123780
agtctcactc tgtcgccagt ctggagtgca gtggtgctgt ctcggctcac tgcaacctcc 123840
gcctcctggg ttccagcgat tcttctgcct cagcctcccg agtagctggg actacaggca 123900
tgtgccacca tgcccagcta acttttgtat ttttagtaga gacggagttt caccacgttg 123960
gccaggatgg tctcaatctc ttgaccttgt gatccgccca ttcggcctcc caaagtgctg 124020

agattatagg tgtgagcctc cgttcccggc caaaagtttc cattttttaa atagttgggt 124080
ttttagtttc gattctttcc aaaaaaaggt tttcttaaaa aaataaaatt agcaataaga 124140
tgaaatataa caacaatata atcttattaa gacaatatat gatatacatt tatcaaaata 124200
cttatatttt caaaagtgct taaaataatc tagcacatag tagatgctca gtaaatattt 124260
gatattatga ctgtgcatgg gtcattatag gctactttat gtatatcatt tcatttagta 124320
caacatcact ctgaaaaatg ttttattgtt accgtttttc agttgaaaca tttacgttgc 124380
tcaagatctc actggtacca tctactatta ggtcagtctg ccaccaaatc tcatgctctt 124440
aaatgccctt tttctcctga gcttccaaca aatagtgtac tgtatataat tgttgaaggg 124500
aggggactgt gagacaaaat atttagagtg aatgtgtagc cacaatttca gttcctcaac 124560
aaagtgataa aattaggaat catcctcaat atatattctt ccaacacaca cacacacata 124620
cacacacaca cacacacaaa taccacaagc ccacttgaat gcaccccacc tacacattgc 124680
aaccatagag acaattgcag cattaaatac agaatattct gtgtgttgtt tgtttgttct 124740
ccctttgcta caaaaatcag aatttctact caataaacag caaagggaga tacaaatgaa 124800
ccaaattaaa gaaggaaaaa atgttgaaaa aattatatac agaactatgt attgatttat 124860
tgagagttca gtaatgtaat ccagaaataa tggatgcctt aaaagtaatt aaaagaatgc 124920
aaataaacat ttagtgccaa ttaaagaaaa agaaatacaa cattagacaa aataaaagat 124980
attcatttga tgcaatgagg aaataatctt ttattcctct ttaaattctc tgtggaataa 125040
ggcatggtta taaataaata aacatctgcc ccatggactt aatggatcgt tatattttat 125100
tgcgataatc ataatgaaat tgttgggagg gattagtatc tctagtgtaa tgctaagaaa 125160
gataaagcct gtgcccaggc aaaagctttc ttggttggtc aaaaggtttg aagacatttc 125220
aaactattct aaaacaaaca aacaagcaaa caaacaaaaa acatacaatg tctttgccac 125280
atatttagga aacaaaatga acaatttatt tctgacaacc tcatagtctt tgttctgtca 125340
gaacaataat ggaaaggtct aaaccagaaa atgctatgca ttgaatttat aataaactat 125400
tttttcctgt aacaaaaaat tgataaactt gatatttgca gatttaatga ttatgtgttt 125460
aaaaaaaatc tggtttttgc ccttgcaaaa aatcatatat atacacatag atatgtatgt 125520
gtgtgtgtgc atagtatata tatatgtata tacatatata tacacacatt tatatatata 125580
aacatttcct ttaacctcct attttattcc aataaaaata ttggtattag agatagttct 125640
gatatttcat catgaatagt taacattgca tttggaaagg attaattttt ttgaaacgta 125700
attttacctt aataagtagc ccagcgtaat attttagtaa ttacacagat tttttttca 125760
agacatttga caactaatat tgcataatag ttaagagtgt gggctttgga gccagacttc 125820
ctatctctgt tcattcactg ataaaatgga gacagtagta acttcctcaa agagttgttt 125880
tttaagatca aataatgcat ataaaactct tgaaatggta ccaaatacag agtaagcacc 125940
aaataaacat taactgttat tgttattcca tgtccgaata acacagaaaa gtaagaattt 126000

taatatttca tttgaatgac cttttaagga tacacctagc ccattatctt tcttgataat 126060
cttgtaagat gattcctttt ttatctccga tctgttgagg catggataga ggttttcaga 126120
gaaaacattt tctaggtaac tgaaagaaag tagcaacaac aaactgtgac aaaacttaac 126180
aatgagagaa tttacaagat agaataattg caactccttt tgaaatcaac cactatggtc 126240
ctctggctgg gatagctaag caaagatatt ccagcctgaa ggttgagatc tacttgaaga 126300
gttttctatc cagattgtga gggcccctca aacttcactt agtatctgtt tctattagta 126360
tggaaacttc tggaaccttg tggtatcaca ttcacttgac tactttattc ctgctctagc 126420
tatcttaaag cctttcttaa tcttttatct tttagagaag atacttctag gttttaaatc 126480
caccgatctt gaagctattg ccttcactct ctgcttcaga gcccatcctt ttgtatatga 126540
gtagtttgtt ttgcctaaag tactttctcc cagtcagatt ttaagtccag tttctcatct 126600
gtttttgaga gcaaactcct gggccttggc tcactaacat cttgacagca tatttcttct 126660
ttcctatggg cttttcagca ttccctgggt ttttctaaaa tatgaaagca gactctttat 126720
ctcttacttt gtcaaagcct accctcccca ctgatttctc acccagttgc tagttttaag 126780
acctgcctct ggccgggcgc agtggctcac gcctgtaatc ccagcacttt gggaggccaa 126840
ggtaggtgga tcacgaggtc aggagatcga gaccatcctg gctaacacag tgaaaccctg 126900
tctctactaa aattacaaaa aaattagcca ggcgtggtgg tgagcgcctg tagtcccagc 126960
tactcgggag gctgaagcag gagaatggcg tgatcccgtg aggcagagct tgcagtgagc 127020
tgagatcgcg ccactgcact ccagcctggg cgacagagcg agactctgtc tcaaaaaaaa 127080
aaaaaaaaaa aaaaaaaaaa aaagacctgc ctccaaatat cattgtattt gcaaacatga 127140
aatgacttat tgattctgag ctcagcacaa gagcaaacct ttctcagctt gacccatctt 127200
cacatcgtta atgtcttatt cagtcactac ccaaggggct gaccttcaag attctaatcc 127260
atgaaagctt aaaatagtaa acaaatttga atatagttta acatacataa taaattttat 127320
ttctagaaga ggaggatcag cccttagaca tgaaaagtaa aaatagttta ttcccagatt 127380
tccctttgtg cattagtata ttcaaccgag tctatccaag taacaggaca aaaaaagctg 127440
gcagttgttg ctgcgctgtg aagtcttatt aggtgagtca gctaattata tggcactacc 127500
ataaatacag caggcactgc cctgcttgtt aggcttgcca aggaaaataa ggatttaaag 127560
cagcatacta cctctttgct atataatgac attttcttct taaaaatgat tttgcaccaa 127620
ttcctgattt atccaccaat tatttttaa tttatggttg aatgtattta aacctgaatt 127680
cagagataaa actagtaaat agctccccaa aataacccca aatatattta atatattagc 127740
tttactctct cctccactgc caaaccttta aaaactgaaa taaattgttt ttatttcatc 127800
ttttctcttt ttctctctct ctaaggtgat tgccaagact aaagaaacag ctagaagggc 127860
aaaagacaag aaaatcagta agatagtaac agattatcca aagtagagca cggctcaggt 127920
gcagtggctc atgcctgtaa tcccagcact ttcggaggct gacgcaggag gatcacttga 127980
gtccaggagt ttgagaccag cctgggcaac ataatgaaac ttcatctcta taaaaaaaaa 128040

aaatttaaat agccgagcat ggtggtgtaa gcctatagtc ccagctattt gggaggctga 128100
ggctggagga tcacttgggc ccaggagttg gagactacag tgagctatga ttgtatcact 128160
gcattacagc ctgggcaata gggcaagacc ctgcctctaa acaaaagata aacaaagtag 128220
agcataaatg gcttctaaat atatgttatt tatgtgtaag actgggttct ctaaaggtat 128280
catttaatta aaatagattt gcattctcaa tctgtaggta tggattatgt ataatgtatt 128340
taagatatga cttacagcgt tcaccaatgt gactattccc aagtgatcca gatggctgat 128400
gacatagtaa tttgtacatt tgctgagacc tgatctgagt aggtatgtaa cataactgag 128460
ggagagcaag tccatttgcc gaaagaaagc ctagcatatg acccaggagc cacatcttca 128520
ctcagccttg ttgctaggtt tggcttagca tatataatag catagcatgt ataatttatg 128580
acaaaaaatt atactttgca ctttttaatt agaacattca aaatgatctc aggaagtggc 128640
accagagatc atcagtggtc tactgtactt cgtgtgtatg tgtctgtgag tatgtatgtg 128700
tttgtgtgtg ttcccacatt ctaaggcatg tcttttacag gttagtagaa aatgttgata 128760
gaaaattata gatttcaaca tctaaaacac agtaggtcac tacattgtta aaacttggaa 128820
ttttttatct tgttgtaaag tcaggccaac caaacctaaa atactgctac attgaaatag 128880
tgcaaaatat tcaaaatact atagttatag atttggtagt aggactgtac cagacctgtc 128940
actctataca agacttatgc cttgcccttt cacttacctg ttccctttta catctatctt 129000
actagatgta atgctataaa ttatatttct aatatattat aatttatcat gtattataat 129060
gtatcaaata ttacaaatta tgttgcaact ccccttacct ttcgtctgca tattgcctca 129120
gaaagaacag atggatccaa cagacttcaa ccacaggccc ttagtgacaa atagctctta 129180
atgctgggct tgccactttg atgcatttct aaagttatag aatgttaaat gcaccaagtc 129240
ctttggtcat tttatttcta ccttagatct aagccataac tatactttcc caaaaattaa 129300
agtttgaatt ttaacttaac catatataat tggaaaagga ggttgggttc gttaagtgta 129360
attttatcat gctttattat cctttgggca ttggatacag cagaacatgc caatttctat 129420
ggcttctcat gtgacagaat atacttacta ggatgcaatt aaatactcct cagagtatgt 129480
aaacaataaa tgtaatcatt acattatttt tatattgttc tttcttatgc ataatagtaa 129540
gactgaaaat atagtgttat ttctgaaata tgcatattgt tttgcttttg atgattaaat 129600
aacattgtcc aaagttttag gttttttgaa atcttatatt ttttaacaaa atatctagcc 129660
tttccaaaac aagacctcaa taattcgttt aagacccaga gttgttcctc tccacataga 129720
tctcttaaaa aggcagagga tttatgacct caagagaaat cagagtatcc aaagtttgct 129780
ttaattcaat gttttaaaaa taaaattcct tagattttat caaaaattga gattagtttg 129840
attttgaatc agatgccctt tgctccccac cccaaaatgg cattatgagc agactaggaa 129900
ttgataatag aaaattgaac atatgaaata tatctttacc ttgcttttta acaaggtatt 129960
catgtctatc gccttcattt ttaagtgcat caataaaata catggtaatt ctcttagtga 130020

aatatactat ctacactatg tacacactcc cctgtctgag gtagagaagt agagaatatt 130080
cacatttttg aaacgtctat gctattttta tttaaatacg agttctgggc ttgatttcat 130140
tttggaacac gggtgtgtgc ttaagttgaa cctttttttc ctcttaagtc aaagttcttt 130200
tttagtttct tcttttatct ttttggctac tatctctctc cttcatcctc ctggtgtgag 130260
ttgttgagtg aaggtattaa ttccattatt tgaggctaag tgacattgtt caataatgca 130320
gcaaaacaat ggttctaccc aaaatatctt caagtgtaaa agcagtgggc aaaagagaaa 130380
gtgcgcttct gctgctttga atgtttaagg ctgtgaaagt tgatcacaca aattgggtca 130440
ttcttgttat acccaactaa aacaatcaag aagcctggga ggaaaagcat tcaagaaaca 130500
tcacattgct ccaaaagtgt aattttctac aagtccgcat gctgaggctg cctgttgtaa 130560
cctgggacca atttttctg taactgctga aaaaacttgc tgcagctcta ggactaattt 130620
tgcccaccac tgtcactcac caattgaagc ttactagctc cccagaacct ttctagtgcc 130680
aatgaacttt ctcaaagagc agcgtgtatc atttctcttt ttcagaacac ctccaacctc 130740
ctctttgttc tttgggtata ccaaagacca accagccttg aatttcaatt tttcttccca 130800
cataaaagtt ttaatttaga aatgtatctc tacatttcta actttgacaa agcatagata 130860
ccagataatt gatgaaacct tgctatttta acgatcacca tggattactt cccagtgtct 130920
tcagataacc ctcaacattt gccaacattt gatggacttc aaaatgagca tatcttttt 130980
aaaaaaaatt attcacactg acagcaagta cattggtata ctctatatta aattatacca 131040
cagggtttac aaacaattgg tgatgtcggg cagtggtttc caaggaacat acttaacaag 131100
acactcacaa ggccctacaa acctgcattt ttaacaaggg ccctagatga ttctagaaga 131160
gtgtggtttg gaaagcaatt tttgccttta ttatgtgtca ttttaaatat atttaaaatt 131220
aaagttataa gtcatagaat tgaataaaga taatttcctt acagaaagta ttactaggta 131280
tctaaataca atatggttca aaacaggaaa tttaaaaaga ttatgtaaat tctgtagttg 131340
tattcctaaa gacagtagct gaaatttttt cctacttctc cttgtatcac ttccctttc 131400
cttcactttc acttccctgg aattgtactt cccaataagc tattagcagt gaaggaagct 131460
tcgtctcatg atctgtttta tagagcactt cagctgggac gagtacgaaa tgataatcag 131520
ttatatcagc tattcaaccc tacaggttta tttaaaaaga acttgaataa gcttttttagg 131580
gagaaagagg tcagtctcag ccatttctgt ttcctaatat agcttttaag tctttcctta 131640
ttagcaatga gggtcattcc attgtaattt tttgataacc atttttcttt ctgtgtgtca 131700
aatgcagata taagatactg aactgagtct atttcactgt tcgtaaaaca atcccatttg 131760
aaaaaaaaaa gtctacagct attccaggga tagggcctag tagagagaga ataaaaggta 131820
ttttcttact atgtctctat atcctaccct gtaggttctc ttattaagca tacaggcata 131880
taccaaaatc cagacgtttt tctcatttat tttattgccc taacatattc tgggttaata 131940
taatatcata atgaaaattt gagaaaaaat tgatttttc aaaagtgttt aacatttgtt 132000
atattggtag ttttttttct tgtttgtggt aaaaataaat agaaggtgca cttcacacct 132060

tcaagtatga ttatattttg aaaacaagtc atgaatactc ataaaatgca aattttaatg 132120
ttctttttt gttacagcca aactatatta ggcacagttg taaattggag ttgaaattta 132180
atatttcttt atagataaca atgtttttag aaataggttt atgaaacagt aaatatacag 132240
gtatagggat aaaattgtgt ctgatggtca tatgaagtgt ttgttgttat attctccttg 132300
gaatagctgc caaatatttt agtatgctta aaatctacga atgtgataga gtcaacaaat 132360
ttagatcaca tattcagaaa aacatagtta gagaactaac tattgaaatg agcatacagc 132420
agtcttcctt tatctacagg gatacattct gaaaccccca ctaggacacc tgaaattgcg 132480
gatagtagca aaccctacat atactgtttt ttccaatgct tatgtaccta tgaaaaagtt 132540
taatttataa actaggcaca gtaagagatt aacaacaata actaataaca aaagagaaca 132600
attataataa tatactgtaa taaaagttat gtgggtatgg tctcgctttc tctttccctc 132660
tctctctgtc tctaaatatc ttagtatttt ggggttgcaa ttggtggtgg gcaactgaaa 132720
ccatggaaaa caaaaccacg gataaaagga gactactgta tatacttttt aaaactgatg 132780
aaatattaaa ctcatgtttc ttctatatcc cacccatttc ccccacccaa acctagatag 132840
atatcttatt tgatctgtaa acatttaatt aatttgtaaa agttaagaac tttttgaagt 132900
aaaactgcaa tatatcatca cacctaaaga aataaacaat aattcttaaa tatcaagtca 132960
gtgttcaaat ttccccaact acctcatatg tgttttccat ttgcttatgt agggttccca 133020
atgagaatga aataaagttc ttaggttgca attggctaat gctctctcac ttctacttta 133080
agcggcaggt tcccactaac ttctttttag ttgcaattta cttattgaaa ttagacgtat 133140
tctttgtctt gtgtagtttc tcacagtgca aaatttgctg attgtagcca ctgttgtaag 133200
caatgaacat gtttttcacc accttatatt tgctgtaagt tgtcagtgat agttaaatgt 133260
taatcaaatt caaattcgga tcacgtaggg cttttctttt tttgttttct ttttctattt 133320
atatatttat ttatttattt tgagacggag tctcactccg tcaccaggct ggagtgcaat 133380
ggtgtgatct gggctcactg caatctccac ctcccgggtt caagtgattc ccctggctca 133440
gtctcccgag tagctgggac tataggagaa ccaccacgcc cggctaactt tttgtatttt 133500
agtagagatg gggtttcacc atgttggcca ggatgctata gatctcctga cctcaccgat 133560
catgtaggac ttcaattgtc gaacaaacga acctttaata gcagttacac cattaggatg 133620
acctgatcca acatcgaggt cgtaaaccct attgtcgatt tggactctag aataggattg 133680
tgctgtcatc cctagtgtag cttgttccca cttgatgaag ttattggatc agtgaacaat 133740
agcccactta aactagtaca gtcttagttt aagatggtga tgtgtatgta cttccatcag 133800
agggcacata atacagtaaa tcctcactta acttcatcaa tagtttctgg aaactgtgac 133860
ttgaagcaaa acaacatata acaaaaccag ttttaccatt ggctaattga tataagcaag 133920
aattaagtcc tatggcaaat ttctggacac aaaaacacca tcaaactcct aaataaagat 133980
aaatcacttc tgacattaaa cattgaaatt aatgtgagct atatatacgt ttaagaaaga 134040

ttaatacaaa caagtcaaat aacttaccta attatttcgg tggaggccgc aggtggttgg 134100
agcctatcct ggcagctcag ggagcaatat gggaacccac cccggacagg acgctgttcc 134160
attactgcag ggtgctcttg tacacaccca ctcacccagg ctggaaccat gcagacacac 134220
acactcacct aacctacaca tctgtgtaca tccttcaaag ttcagccaaa taacatataa 134280
acaaatccag taatatccat cagtcttagt tccgtcataa caactccttt ttgatcatca 134340
aacaacaaac agggtaggtc tgccatattt acttgtctgg tccatatcaa aattttctaa 134400
caaattatat tagaaaatca aatctctgtc agtttcaaaa tcatggaaaa aaatttgcct 134460
tatttccctt atacttggat atcctaacag taatctaaat attaatgaga aagttaatga 134520
tgtcgtttcc ttctccctgt tgtaaagaag gttttgctgt cccgtttgat cactaagact 134580
aattgacact cagaaaaagc ataggaaact tctcagcatc acaaaagctc tgtcatctag 134640
agaagctagg acttgagctc aagtcctgtg acatggaagg ccttgtgcct agccatcctg 134700
cagcagaggc gtatctacca agaagtgaaa cactacgaaa acagtatgtt tactccacat 134760
tttaaagtga ggtagtttgg ggtggttcat attttattta atttatatat tatttggatt 134820
ttttttagtt tataaaaagg gcattggcaa gggcagaatg atctgtaagc ttctctgccc 134880
acctaccata agcatgatct ttagtgtgac cttttcttac tgttagccat tttcttatac 134940
ttctgcgtcc ctgtcagtca cttccatgtg aagacatggg gaagcttttt tacatcagac 135000
atgttgttga aaatcagccg cgttggctga gggattattt gatctctttc tccaagtccc 135060
tttaggctca cattgcctct ctgttctttg aattttcact tacctttatc ttcttataat 135120
tactttgctg aaataaatgc aaagcaacaa aaggtattta gtgaagaata ccaacaaagc 135180
catgaccatt tcaggctgag ttttgtagta ttctttgtct aggaagagat acctagaaaa 135240
attttctgac catgtatttg attatttttcc ttcaatatgt atagtctcag tcttcaaatt 135300
tcagaaaaga atttgtttct tcattgtcat ttaaaattaa tgtgttaaat atgtatgctt 135360
ttacattata agtggttata aaagttaaac acttagaaaa aaagtcaaaa taacatacat 135420
actatccaac aaaataactt tcatatttta ttgtgttttc ttccaaactt tttacctttg 135480
cgtctgaatt ctgtgtaggt tgtatctata atatagacaa cactttatag cctgctaaat 135540
attataccat aaataggtag ttgttacata attctcaggt aatagtaata caggtcttta 135600
tcataatcta ctgagtagtt gaatgataat ttttttaag acaaggtctc cctctgtcac 135660
ccaggctaga atgcagtggc atgcacatgg ctcactgtag cctctacctc ccaggctcaa 135720
gtgatcctcc tgcctcagcc tcccaagtgg ctgggactgt aggcatgtgc caccatgccc 135780
agctatttat ttgtattttt agtagagatg gggtttcatt gtaacagccc aggctggtct 135840
tgaactcctg gactcaaatg atccacctgc ctcagcctcc caaagtgctg aaatcacagg 135900
agtgaaccac tgcacccagc aataattttt taactcttca ttattcattg aacatttagt 135960
taacaattct aaaaattttg tttcctgctg tcattgatct tgtgaaaaat atctttggac 136020
tatagctgtg gattatttcc taaatagtaa attacttgag caaaaagttt acatactttg 136080

agggttgata acccatgttg ccgcaatgtt tccccggagg cattgtggag tttagaatgc 136140
cagtagtaat attaaggtgt gccattttca agatccgtgg ccaacatccc tatatgtaag 136200
atttttccaa aacatggttc tgatttttaa aagtgaaaaa tgctacttca tcatgttctt 136260
tttgtgcttc ttactttaaa tattagaatg aagaaggagc cccacaggaa ggaattctgg 136320
aagatatgcc tgtggatcct gacaatgagg cttatgaaat gccttctgag gtaggagtcc 136380
aagctgaatc tttctaacaa gacagtacca aaaacctgtc attgtcacat ttctctttca 136440
ttagtgctta gtgagaatca tttgctctct acatgctcat tacgtggaca acttgcaagt 136500
taagaatagt ttttacattt ttaaagggtc cttaaaaaaa aagaggagga ggaagatgaa 136560
gaagaggaag aaaggatgta aaagaaatca tatgtagtcc acatagctta atatacttac 136620
tacttgaccc tttacaggaa aagtttacta acccctgcat tagagaatat atttttagaa 136680
actttacatt ctaaaataaa tttctaaatg gaaagttagg gaaatcaatg gaatgccaaa 136740
ggaaggttat tatttttgc catacatgtc caatgggatg acgcatagta aaataaaagt 136800
tacccacaca agttatagaa taaaaagata aatgcatgat ttgcgacaat tgatatattc 136860
cagtataatg ttttaaacaa cacaatatga ttgttaattt tattttgatt gaaaatgaaa 136920
gtatctttaa tagaaaatgt atcaaaaggg aaattagaaa atactgttag atgaataaaa 136980
ctggcccaag aagaaacagt aaatctgaat agatttgtaa cacagcgaat agattaaatt 137040
agtaataaaa aaaaaaacct acctgcaaag aaaatcccag gccgagatgg catcactggt 137100
aaattctacc aaacatttaa agaggaatta atactaatta gttaacacca attaatatct 137160
cttacaaaac agaagaggag acatttccca actaattttg tgagaccaat attaccctga 137220
taatcaaaac caaacgaaga tatcacaaga aaagaaacta tataatggct ccattaaaaa 137280
ttgagttcaa gtatgttgta gtttggttat gtattattcc tcacggcatt attaaaaggc 137340
atgtcgagga tgggcacagc agttcacacc tgtaatcccg cactttgtga gccaaagtgg 137400
ccaggttact tgaggccagg agttggagac cagtctggcc aacatggtga aaccccatct 137460
ctactaaaaa tacaaaaatt agccgggcat ggtggtacac gcctatggtt ccagctactt 137520
gggaggctga ggcatgagag tcacttgaac ccaggaggca gaggttgcag tgagctgaga 137580
tggcaccccc gcactccaat cttggtaaca gagcaagact gtctcacaca gacacacgaa 137640
aggcatattg ataataattc aacttataga aattgagatt aaattgtttg tttgcctaat 137700
aagaatttcc aatattttgg ggtcttttat gcaagacaca gtactaaaca caatggaaaa 137760
ctatagagta attgacatta ccaggacata aggagtttac agtctggtag gtttgatgaa 137820
aaaaaataga aattcattca ttcatttctt cattatgatt cctttaacaa acataattga 137880
ttgtcttcga tgtaccaggc atcacaggag caaaaatata taagacatac taaaaagtaa 137940
aacattttaa agatctgttt caatcaatca ggagaagttt tattgaggag gtaatgttga 138000
tctgggtggg aaaaggtaag agatatagta ggtcaaaaca aacagaggac attctggcac 138060

aagggaatat cagaagcaaa ggcatgtatg tctgagcatg caaatggata tgtctgagaa 138120
cagtgaataa ttatgactca agcttaggaa caaggaaaat ggtgatagat tgaatttgca 138180
gctatgggtc aaagacaagt tatagagtat taggataatc ttgtcatttc agcttgtatt 138240
ctattcagaa aacaacttga gttattgaag ttatgcttat ttgtttgttt ttaagcagaa 138300
tcctgatatt attagagttg ctctttagga ggaataatct gatcccttta attaaatcca 138360
ttaatatttg tgttgtggat gctatccaga tactgtatgg agagcttgag gtttgaaata 138420
caagtaataa ttgaagccat agatgaagac gaaattttca actgggagag tgaaagtagg 138480
gaaaatgtat cttgccttca aacatcttaa tttccttctg agaattagag catcttagtc 138540
tggaaaaggc tttatagaca gcttgatttt gttctcacat tttacaggtg aagaaactga 138600
gaaccagaca gtccaactta tttgtcctac caaactaggt atatgatcat taaatggtgc 138660
atccggatca gaacctagat attttaactc tgactactac tgtaattcac ttttatatca 138720
gacaagaaag acacaactat taaaaataag ataatatttg ctgcagaata tttgcaaaaa 138780
cattgattgt aaattttagt gtaagtgggg agccatttcc tatctcattg gctgtcagtg 138840
ctgatgcgta attgaaactt atactaacag tgtgtgctgt ctttttgatt tttctaatat 138900
taggaagggt atcaagacta cgaacctgaa gcctaagaaa tatctttgct cccagtttct 138960
tgagatctgc tgacagatgt tccatcctgt acaagtgctc agttccaatg tgcccagtca 139020
tgacatttct caaagttttt acagtgtatc tcgaagtctt ccatcagcag tgattgaagt 139080
atctgtacct gcccccactc agcatttcgg tgcttccctt tcactgaagt gaatacatgg 139140
tagcagggtc tttgtgtgct gtggattttg tggcttcaat ctacgatgtt aaaacaaatt 139200
aaaaacacct aagtgactac cacttatttc taaatcctca ctatttttt gttgctgttg 139260
ttcagaagtt gttagtgatt tgctatcata tattataaga tttttaggtg tcttttaatg 139320
atactgtcta agaataatga cgtattgtga aatttgttaa tatatataat acttaaaaat 139380
atgtgagcat gaaactatgc acctataaat actaaatatg aaattttacc attttgcgat 139440
gtgttttatt cacttgtgtt tgtatataaa tggtgagaat taaaataaaa cgttatctca 139500
ttgcaaaaat attttatttt tatcccatct cactttaata ataaaaatca tgcttataag 139560
caacatgaat taagaactga cacaaaggac aaaaatataa agttattaat agccatttga 139620
agaaggagga attttagaag aggtagagaa aatggaacat taaccctaca ctcggaattc 139680
cctgaagcaa cactgccaga agtgtgtttt ggtatgcact ggttccttaa gtggctgtga 139740
ttaattattg aaagtggggt gttgaagacc ccaactacta ttgtagagtg gtctatttct 139800
cccttcaatc ctgtcaatgt ttgctttacg tattttgggg aactgttgtt tgatgtgtat 139860
gtgtttataa ttgttataca ttttttaattg agccttttat taacatatat tgttattttt 139920
gtctcgaaat aatttttttag ttaaaatcta ttttgtctga tattggtgtg aatgctgtac 139980
ctttctgaca ataaataata ttcgaccatg aataaaaaaa aaaaaaaagt gggttcccgg 140040
gaactaagca gtgtagaaga tgattttgac tacaccctcc ttagagagcc ataagacaca 140100

ttagcacata ttagcacatt caaggctctg agagaatgtg gttaactttg tttaactcag 140160
cattcctcac ttttttttt taatcatcag aaattctctc tctctctctc tctttttctc 140220
tcgctctctt ttttttttt ttttttttta caggaaatgc ctttaaacat cgttggaact 140280
accagagtca ccttaaagga gatcaattct ctagactgat aaaaatttca tggcctcctt 140340
taaatgttgc caaatatatg aattctagga tttttcctta ggaaaggttt ttctctttca 140400
gggaagatct attaactccc catgggtgct gaaaataaac ttgatggtga aaaactctgt 140460
ataaattaat ttaaaaatta tttggtttct ctttttaatt attctggggc atagtcattt 140520
ctaaaagtca ctagtagaaa gtataatttc aagacagaat attctagaca tgctagcagt 140580
ttatatgtat tcatgagtaa tgtgatatat attgggcgct ggtgaggaag gaaggaggaa 140640
tgagtgacta taaggatggt taccatagaa acttcctttt ttacctaatt gaagagagac 140700
tactacagag tgctaagctg catgtgtcat cttacactag agagaaatgg taagtttctt 140760
gttttattta agttatgttt aagcaaggaa aggatttgtt attgaacagt atatttcagg 140820
aaggttagaa agtggcggtt aggatatatt ttaaatctac ctaaagcagc atattttaaa 140880
aatttaaaag tattggtatt aaattaagaa atagaggaca gaactagact gatagcagtg 140940
acctagaaca atttgagatt aggaaagttg tgaccatgaa tttaaggatt tatgtggata 141000
caaattctcc tttaaagtgt ttcttccctt aatatttatc tgacggtaat ttttgagcag 141060
tgaattactt tatatatctt aatagtttat ttgggaccaa acacttaaac aaaaagttct 141120
ttaagtcata taagcctttt caggaagctt gtctcatatt cactcccgag acattcacct 141180
gccaagtggc ctgaggatca atccagtcct aggtttattt tgcagactta cattctccca 141240
agttattcag cctcatatga ctccacggtc ggctttacca aaacagttca gagtgcactt 141300
tggcacacaa ttgggaacag aacaatctaa tgtgtggttt ggtattccaa gtggggtctt 141360
tttcagaatc tctgcactag tgtgagatgc aaacatgttt cctcatcttt ctggcttatc 141420
cagtatgtag ctatttgtga cataataaat atatacatat atgaaaatat gtatttggtt 141480
tctgcctcca gttcttacaa agagctccta aaacccttgt aatttcctga gtagtagggg 141540
tgctagggtc atcttttgtt ctaatatttg gtctttgact ctgctttctg acagagctcc 141600
ttagtccctg ggtgagagta gcatcttctc ttctaatgaa gtgactcttg ctgggttcct 141660
ggatgggggc tggtcaccag aaaggtcaag ccatgataag aagcttgaag cttttggccc 141720
cattcacatc ttctggggac gggagagaag aggagctgga gattgagtta ataagcaaca 141780
atgcttccat gatgaagact ccataaaaat ccctaaaaga caggattcag agtgctttga 141840
aataggtgaa catgcagagg tgctgggaat tgtggtgtgt ccagagaagg catgcaagct 141900
ccccacgcct cccccatacc tttccctgtg catctcttcc atctggctgt tcctgagttg 141960
tatcctttta taacaaactg gtaatctagt aagcaaactg ttttcctgaa gtctgtgaat 142020
cacactagca aattatcaaa cctgaggaga gggccgtgga gaccttggat ttgtagacaa 142080

gtcaaacaga agctatgagt aacatgagga ctcattgctt gtgattgtca tcttcagtgg 142140
gaaggggaaa aatcttgtaa aactgagtcc ttaacctgtg ggtcaatgct aactccaggt 142200
agatagtgtc cgatttgaat tacgggacac ccagttggta gccacaaaga atgggagaat 142260
tgcttggtgt agaaaacaca ccccacacac acatgtggtg tcagaaatga accggaaata 142320
ttgtgttccg gaaatattga gtgttgtgag tgagtgtata gaaagaaaaa cagcgtttcc 142380
ttttcactac tagattaaaa caaacacact catgcattca cacatctcaa agacaactat 142440
taattctcaa agacagtgct gtctaaatcc atactgagga agaaaacaca ttttcttttc 142500
aaatctgtaa acctgacaga ctgcctctgt ccacacacta atggaactct gtgtttcatc 142560
tgaaatgtgt tcatcccact ttgttctttc tgtcttgggc agggcaagag tgcaacaggg 142620
ctgacatttt catatgagct ctgtccctgt tattggctat actttagaca aattattatg 142680
tgtcaaatat agatgtaagt gatttatcaa tattaagtca tttaattctc aaaacaacct 142740
taataggttc cattatgatt ctaattttac acataagcca aaggaggcac ccacaggcta 142800
gataactttc ccacggccac acagctagta agcggcagag ccaagaggcc caacattaca 142860
gcaccacagt ctgtgctctc agccccttgg ccacatagtg tcagagtgag gacacacagc 142920
tatttaagaa aacttccaga agtctaggaa atggggtgat agccccactt ttctaggtat 142980
aataattaga tatttgtttt tcttcaggta cctaaagaaa atttactaga gtttgagcct 143040
ttagtaagtt ttgctagtac atctgttttt cttcaggtgc ctgaagacaa acatatacac 143100
acacacacac acacaaacac acacaaaatg tgtatctata tatatgtgta cacatatctc 143160
tcatctctat atatatgtct ctgtatatct atatatctat aaacatatct atatctatag 143220
atacatatag agagatttct ttttttttt ttttgagatg gagtcttgct cttgccacct 143280
aggctggagt gcaatggcac aatctcagtt cactgcaacc tccgcctccc aggttcaagc 143340
gattctcctg cctcagcctc tcgagtaggt gggattacag gaacacacca ccttagcccg 143400
actaattttt gtatttttag tagagacagg gttcaccacg ttggccaggc tggtctcaaa 143460
ctcctgacct caggtaatcc acctacctcg gcctcccaaa gtgctgggat tacaggtgtg 143520
agccaccatg cctggccaag atttctaatt ctaagagaaa ttagcacctg ataggtattt 143580
ccttgtaaat aaaccgggca tatcctgatt atagaactaa gttaattatt ttccgtggaa 143640
gatacgaatg ttgatgcaat aagagcagca gtctacagta aggtgggctt tgtaattttc 143700
tgtgttgaat catggcatgg gtacttggct tatgtcaaat agacaaaaaa atataaatta 143760
aggtataact gggattgtca attatacata tttagtaatg gaatgaatga atttataaat 143820
agatagtaaa gggcatgaat taagaatcta taggtataaa taatattagc aacttaatat 143880
tgtataataa agtttgattt tctaggtgta gttgattgat gcagtaatgt tcgttttatc 143940
ctttgagtaa gcctagaatt gaagaaccca aaatgcaata gaatagatat aacattgaaa 144000
ctattcctaa atatgatttt agttccaatg ttctttgtgt aattacctaa gcttttcttt 144060
aatgtttttg ctgctactac agtatcctta attatttgaa atcttatatt ggaagcagtt 144120

aaaccacatt ccttcaaaga gcccttagtt tgagcctcta gtaagttttg ctagtataat 144180
ttggttttaa aattggctag aattgcatag ggaatttcca taacgtatag ttgatctgca 144240
actataggtt aacatactag gatggcttct cttatgaacc ttatgaaaat acatcctcag 144300
attccctgga aggtcagtga ccagaaatcc tcgttgtttc tatggcaaca cagcaagata 144360
tggtgccttg gaaatgtgct gcattttaat taggttcctc tagggcttcc taactgcctt 144420
ttgcaggtaa actaaatatc agattgcctt ttatcttgca acaaaatgaa acctaaccca 144480
tgtctgtaaa tgtcaaagct aagctgtgtt ccagtaaagc tgaatccaaa caaatatagt 144540
agcaagtcat gtttttatct tagaaaagaa tacaatactc tttacctaga atagtcaagg 144600
atgctgctta atgaggtagg ttagagtaat agagactatc ctgaactcca aaactattaa 144660
tagactatgg aacttcgact cccatttatg tctcttacta cttaatatta gtgtctctgt 144720
ttccttatat gtaaatatgc aaatgataaa aatagtgcct catagcattg ttgcatgcat 144780
taagtgagtt aatgtaagtg gaatacttag gactgcctgg ctgatagtaa gtgatctatg 144840
agtcaatgat gctatttatt agtagtagta ctagtacagc acactgtatt tttaaaggta 144900
aataagaaat aacaattttt ttaaatgttc atatacattc acatgtcttc ttttaatata 144960
aaatagcaat caagatcagg ataatggtag agatattttg gagacacaag gcagaagcta 145020
tttactaata gctaggggag cattttacta gtttactaac caatattact atacttatgt 145080
gtacttagca gaatatcacc tagcaccaaa aagaaattaa gaaagtgtaa cttactgaga 145140
agtgaatatg caccaactcc ataaacacta tgtttatgga acacatctaa ctttagactt 145200
agctatactc atcgactcac atatcttctc atccaagtgg gatgtgttta atatttacca 145260
tatattcata agttcactga gtattgttct ggtaactaga aaaaaaaaag gacaagcata 145320
tataagtaaa actcactgat ttaaaacaga gtattatcaa ctacaaaaga aaaaaaaaac 145380
cacttgaacc tccactgatt tctcaaatct catttatttc ccattatctt ccctcatacc 145440
tcttgcattt atttggttaa atttcttttt gatccaaaag gaagcaatgt ttacctgaca 145500
atttctactt tatgccagaa caacaaatgt accagcaatt acaatatttc caagaaaagt 145560
attgtttgtt ttctcttcat gtctttggtg agtctctcgg aattag 145606

<210> 8
<211> 4349
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(4349)
<223> LOCUS DRPLA 4349 bp mRNA linear P
RI 13-MAY-2002
DEFINITION Homo sapiens dentatorubral-pallidoluysian atrophy (at
rophin-1)
(DRPLA), mRNA.
ACCESSION XM_032588

p11089.ST25.txt

<300>
<308> XM_032588
<309> 2002-05-13
<313> (1)..(4349)

<400> 8
acgccatact ggacgccaag tgggaggaac ttcaaggctg tcccctgcgg gcctcccgct 60
ctgcttctgc gaaggtttca ttgaaaacag atcctgcaaa agttccaggt gcccacactg 120
gaaacttgga gatcctgctt cccagaccac agctgtgggg aacttggggt ggagcagaga 180
agtttctgta ttcagctgcc caggcagagg agaatggggt ctccacagcc tgaagaatga 240
agacacgaca gaataaagac tcgatgtcaa tgaggagtgg acggaagaaa gaggcccctg 300
ggccccggga agaactgaga tcgaggggcc gggcctcccc tggaggggtc agcacgtcca 360
gcagtgatgg caaagctgag aagtccaggc agacagccaa gaaggcccga gtagaggaag 420
cctccacccc aaaggtcaac aagcagggtc ggagtgagga gatctcagag agtgaaagtg 480
aggagaccaa tgcaccaaaa aagaccaaaa ctgagcagga actccctcgg ccacagtctc 540
cctccgatct ggatagcttg gacgggcgga gccttaatga tgatggcagc agcgacccta 600
gggatatcga ccaggacaac cgaagcacgt cccccagtat ctacagccct ggaagtgtgg 660
agaatgactc tgactcatct tctggcctgt cccagggccc agcccgcccc taccacccac 720
ctccactctt tcctccttcc cctcaaccgc cagacagcac ccctcgacag ccagaggcta 780
gctttgaacc ccatccttct gtgacaccca ctggatatca tgctcccatg gagcccccca 840
catctcgaat gttccaggct cctcctgggg cccctccccc tcacccacag ctctatcctg 900
ggggcactgg tggagttttg tctggacccc caatgggtcc caaggggga ggggctgcct 960
catcagtggg gggccctaat gggggtaagc agcacccccc acccactact cccatttcag 1020
tatcaagctc tggggctagt ggtgctcccc caacaaagcc gcctaccact ccagtgggtg 1080
gtgggaacct accttctgct ccaccaccag ccaacttccc ccatgtgaca ccgaacctgc 1140
ctcccccacc tgccctgaga cccctcaaca atgcatcagc ctctcccccc ggcctggggg 1200
cccaaccact acctggtcat ctgccctctc cccacgccat gggacagggt atgggtggac 1260
ttcctcctgg cccagagaag ggcccaactc tggctccttc accccactct ctgcctcctg 1320
cttcctcttc tgctccagcg ccccccatga ggtttcctta ttcatcctct agtagtagct 1380
ctgcagcagc ctcctcttcc agttcttcct cctcttcctc tgcctccccc ttcccagctt 1440
cccaggcatt gcccagctac ccccactctt tccctccccc aacaagcctc tctgtctcca 1500
atcagccccc caagtatact cagccttctc tcccatccca ggctgtgtgg agccagggtc 1560
ccccaccacc tcctccctat ggccgcctct tagccaacag caatgcccat ccaggccccc 1620
tccctccctc tactggggcc cagtccaccg cccacccacc agtctcaaca catcaccatc 1680
accaccagca acagcaacag cagcagcagc agcagcagca gcagcagcag cagcagcagc 1740
agcatcacgg aaactctggg ccccctcctc ctggagcatt tccccaccca ctggagggcg 1800

gtagctccca ccacgcacac ccttacgcca tgtctccctc cctggggtct ctgaggccct 1860

acccaccagg gccagcacac ctgcccccac ctcacagcca ggtgtcctac agccaagcag 1920

gccccaatgg ccctccagtc tcttcctctt ccaactcttc ctcttccact tctcaagggt 1980

cctacccatg ttcacacccc tccccttccc agggccctca aggggcgccc tacccctttcc 2040

caccggtgcc tacggtcacc acctcttcgg ctacccctttc cacggtcatt gccaccgtgg 2100

cttcctcgcc agcaggctac aaaacggcct ccccacctgg gcccccaccg tacggaaaga 2160

gagccccgtc cccgggggcc tacaagacag ccaccccacc cggatacaaa cccgggtcgc 2220

ctccctcctt ccgaacgggg accccaccgg gctatcgagg aacctcgcca cctgcaggcc 2280

cagggacctt caagccgggc tcgcccaccg tgggacctgg gcccctgcca cctgcggggc 2340

cctcaggcct gccatcgctg ccaccaccac ctgcggcccc tgcctcaggg ccgcccctga 2400

gcgccacgca gatcaaacag gagccggctg aggagtatga gaccccgag agcccggtgc 2460

ccccagcccg cagcccctcg ccccctccca aggtggtaga tgtacccagc catgccagtc 2520

agtctgccag gttcaacaaa cacctggatc gcggcttcaa ctcgtgcgcg cgcagcgacc 2580

tgtacttcgt gccactggag ggctccaagc tggccaagaa gcgggccgac ctggtggaga 2640

aggtgcggcg cgaggccgag cagcgcgcgc gcgaagaaaa ggagcgcgag cgcgagcggg 2700

aacgcgagaa agagcgcgag cgcgagaagg agcgcgagct tgaacgcagc gtgaagttgg 2760

ctcaggaggg ccgtgctccg gtggaatgcc catctctggg cccagtgccc catcgccctc 2820

catttgaacc gggcagtgcg gtggctacag tgccccccta cctgggtcct gacactccag 2880

ccttgcgcac tctcagtgaa tatgcccggc ctcatgtcat gtctcctggc aatcgcaacc 2940

atccattcta cgtgcccctg ggggcagtgg acccggggct cctgggttac aatgtcccgg 3000

ccctgtacag cagtgatcca gctgcccggg agagggaacg ggaagcccgt gaacgagacc 3060

tccgtgaccg cctcaagcct ggctttgagg tgaagcctag tgagctggaa cccctacatg 3120

gggtccctgg gccgggcttg gatccctttc cccgacatgg gggcctggct ctgcagcctg 3180

gcccacctgg cctgcaccct ttccccttttc atccgagcct ggggcccctg gagcgagaac 3240

gtctagcgct ggcagctggg ccagccctgc ggcctgacat gtcctatgct gagcggctgg 3300

cagctgagag gcagcacgca gaaagggtgg cggccctggg caatgaccca ctggcccggc 3360

tgcagatgct caatgtgact ccccatcacc accagcactc ccacatccac tcgcacctgc 3420

acctgcacca gcaagatgct atccatgcag cctctgcctc ggtgcaccct ctcattgacc 3480

ccctggcctc agggtctcac cttacccgga tcccctaccc agctggaact ctccctaacc 3540

ccctgcttcc tcaccctctg cacgagaacg aagttcttcg tcaccagctc tttgctgccc 3600

cttaccggga cctgccggcc tccctttctg ccccgatgtc agcagctcat cagctgcagg 3660

ccatgcacgc acagtcagct gagctgcagc gcttggcgct ggaacagcag cagtggctgc 3720

atgcccatca cccgctgcac agtgtgccgc tgcctgccca ggaggactac tacagtcacc 3780

tgaagaagga aagcgacaag ccactgtaga acctgcgatc aagagagcac catggctcct 3840

acattggacc ttggagcacc cccaccctcc ccccaccgtg cccttggcct gccacccaga 3900

gccaagaggg tgctgctcag ttgcagggcc tccgcagctg gacagagagt gggggaggga 3960

gggacagaca gaaggccaag gcccgatgtg gtgtgcagag gtggggaggt ggcgaggatg 4020

gggacagaaa gcgcacagaa tcttggacca ggtctctctt ccttgtcccc cctgcttttc 4080

tcctccccca tgcccaaccc ctgtggccgc cgcccctccc ctgccccgtt ggtgtgatta 4140

tttcatctgt tagatgtggc tgttttgcgt agcatcgtgt gccacccctg cccctccccg 4200

atccctgtgt gcgcgccccc tctgcaatgt atgcccttg cccttcccc acactaataa 4260

tttatatata taaatatcta tatgacgctc ttaaaaaaac atcccaacca aaaccaacca 4320

aacaaaaaca tcctcacaac tccccagga 4349

<210> 9
<211> 13994
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(13994)
<223> LOCUS SEG_HUMHD 13994 bp DNA linear P
RI 12-FEB-2001
DEFINITION Homo sapiens huntingtin (HD) gene.
ACCESSION AH003045 REGION: 316..14309
VERSION AH003045.1 GI:663286

<300>
<308> L27350
<309> 2001-02-12
<313> (1)..(614)

<400> 9
atggcgaccc tggaaaagct gatgaaggcc ttcgagtccc tcaagtcctt ccagcagcag 60

cagcagcagc agcagcagca gcagcagcag cagcagcagc agcagcagca gcagcaacag 120

ccgccaccgc cgccgccgcc gccgccgcct cctcagcttc ctcagccgcc gccgcaggca 180

cagccgctgc tgcctcagcc gcagccgccc ccgccgccgc ccccgccgcc acccggcccg 240

gctgtggctg aggagccgct gcaccgaccg tgagtttggg cccgctgcag ctccctgtct 300

attaatttcc ttctttttt tatttttaga aagaaagaac tttcagctac caagaaagac 360

cgtgtgaatc attgtctgac aatatgtgaa aacatagtgg cacagtctgt caggtaattg 420

cactttgaac tgtctagaga aaacttgaca gtttctcttc ttttttttgct tagaaattct 480

ccagaatttc agaaacttct gggcatcgct atggaacttt ttctgctgtg cagtgatgac 540

gcagagtcag atgtcaggat ggtggctgac gaatgcctca acaaagttat caaagtaaga 600

accgtgtgga tgatgttctc ctcacttcca taaatctctt gtgatttgtt gtaggctttg 660

atggattcta atcttccaag gttacagctc gagctctata aggaaattaa aaaggtgggc 720

cttgcttttc ttttttaaaa atgtcttaat gcaaccctca ttgcaccccc tcagaatggt 780

gcccctcgga gtttgcgtgc tgccctgtgg aggtttgctg agctggctca cctggttcgg 840

cctcagaaat gcaggtaagt tgtacactct ggatgttggt ttttagaatg acttgcgttc 900

ttttgcatac acaggcctta cctggtgaac cttctgccgt gcctgactcg aacaagcaag 960

agacccgaag aatcagtcca ggagaccttg gctgcagctg ttcccaaaat tatggcttct 1020

tttggcaatt ttgcaaatga caatgaaatt aaggtatgat tgttgcctca ggtcacaaac 1080

atgttttatc tacttggact tttgcttccg taggttttgt taaaggcctt catagcgaac 1140

ctgaagtcaa gctcccccac cattcggcgg acagcggctg gatcagcagt gagcatctgc 1200

cagcactcaa gaaggacaca atatttctat agttggctac taaatgtgct cttaggtaag 1260

gtggaggcat atgagtggaa gagtctgtta agatgtcttg cttccacccc cacaggctta 1320

ctcgttcctg tcgaggatga acactccact ctgctgattc ttggcgtgct gctcaccctg 1380

aggtatttgg tgcccttgct gcagcagcag gtcaaggaca caagcctgaa aggcagcttc 1440

ggagtgacaa ggaaagaaat ggaagtctct ccttctgcag agcagcttgt ccaggtagga 1500

gcacagggtt tactctagga actgaccaga acacctgtgt ttctctgttt ctaggtttat 1560

gaactgacgt tacatcatac acagcaccaa gaccacaatg ttgtgaccgg agccctggag 1620

ctgttgcagc agctcttcag aacgcctcca cccgagcttc tgcaaaccct gaccgcagtc 1680

gggggcattg ggcagctcac cgctgctaag gaggagtctg gtggccgaag ccgtagtggg 1740

agtattgtgg aacttatagg caagttatta gcaaggtcta cacttacaaa ctttatctgt 1800

cactttctgt gatttgcagc tggaggggggt tcctcatgca gccctgtcct ttcaagaaaa 1860

caaaaaggtg attatttcag aaatcagagt cttgtgttaa aaggaatgtt ggtacattat 1920

ttactaggca aagtgctctt aggagaagaa gaagccttgg aggatgactc tgaatcgaga 1980

tcggatgtca gcagctctgc cttaacaggt agttctcact agttagccgc tggtgtggtt 2040

tgacaaatga gtgtttctct gtcttcagcc tcagtgaagg atgagatcag tggagagctg 2100

gctgcttctt caggggtttc cactccaggg tcagcaggtc atgacatcat cacagaacag 2160

ccacggtcac agcacacact gcaggcggac tcagtggatc tggccagctg tgacttgaca 2220

agctctgcca ctgatgggga tgaggaggat atcttgagcc acagctccag ccaggtcagc 2280

gccgtcccat ctgaccctgc catggacctg aatgatggga cccaggcctc gtcgcccatc 2340

agcgacagct cccagaccac caccgaaggg cctgattcag ctgttacccc ttcagacagt 2400

tctgaaattg taagtgggca gaggggcctg acatctttta attctcacag ccccccttga 2460

accgtttagg tgttagacgg taccgacaac cagtatttgg gcctgcagat tggacagccc 2520

caggatgaag atgaggaagc cacaggtatt cttcctgatg aagcctcgga ggccttcagg 2580

aactcttcca tgggtatgtg gactacaggt gatgcgctac aaacacttaa tcttgatttc 2640

tctgttttta aagcccttca acaggcacat ttattgaaaa acatgagtca ctgcaggcag 2700

ccttctgaca gcagtgttga taaatttgtg ttgagagatg aagctactga accgggtgat 2760

caagaaaaca aggtgaggga cataggcttg agacgacttg gtgacaaaca agtgtcattg 2820

tctcctttct agccttgccg catcaaaggt gacattggac agtccactga tgatgactct 2880
gcacctcttg tccattgtgt ccgcctttta tctgcttcgt ttttgctaac agggggaaaa 2940
aatggtgagt acaaaagggg atgtgcacag ttgactgaag gtggcttggg tgatttcttg 3000
gcagtgctgg ttccggacag ggatgtgagg gtcagcgtga aggccctggc cctcagctgt 3060
gtgggagcag ctgtggccct ccacccggaa tctttcttca gcaaactcta taaagttcct 3120
cttgacacca cggaataccc tggtatgtta aaagttcaca tctgatgtgc tcgttccatg 3180
gctgagcaat ttatctccac agaggaacag tatgtctcag acatcttgaa ctacatcgat 3240
catggagacc cacaggttcg aggagccact gccattctct gtgggaccct catctgctcc 3300
atcctcagca ggtcccgctt ccacgtggga gattggatgg gcaccattag aaccctcaca 3360
ggtaacggcc agtttttcag ctgtgttttt tatgatgttt gttgcttgtt cttctggtta 3420
ggaaatacat tttctttggc ggattgcatt cctttgctgc ggaaaacact gaaggatgag 3480
tcttctgtta cttgcaagtt agcttgtaca gctgtgaggg tgagcataat cttctgtgga 3540
accatttctt gtcctcttgc cttggacctt gtgttccaga actgtgtcat gagtctctgc 3600
agcagcagct acagtgagtt aggactgcag ctgatcatcg atgtgctgac tctgaggaac 3660
agttcctatt ggctggtgag gacagagctt ctggaaaccc ttgcagagat tgacttcagg 3720
taagtgagtc acatccatta gatttcatga tttcattgtt aaatgtgctc ttttgttagg 3780
ctggtgagct ttttggaggc aaaagcagaa aacttacaca gaggggctca tcattataca 3840
ggggtaagca gtttatttt gtgagatgct gtttgtttat ttttattatc cttctctcta 3900
aagcttttaa aactgcaaga acgagtgctc aataatgttg tcatccattt gcttggagat 3960
gaagacccca gggtgcgaca tgttgccgca gcatcactaa ttaggtattt accaatattt 4020
tatctctttt ccttttaagc aaattaacct tacttttgtg ttaggcttgt cccaaagctg 4080
ttttataaat gtgaccaagg acaagctgat ccagtagtgg ccgtggcaag agatcaaagc 4140
agtgtttacc tgaaacttct catgcatgag acgcagcctc catctcattt ctccgtcagc 4200
acaataacca ggtatgctga cccagtggca tcttcacatt gtattttaag tctctatatt 4260
tttgttatta gaatatatag aggctataac ctactaccaa gcataacaga cgtcactatg 4320
gaaaataacc tttcaagagt tattgcagca gtttctcatg aactaatcac atcaaccacc 4380
agagcactca cagtaagtct ctttcttgat gcctcttact gaggtgtgat tttattgttt 4440
ctttcttctg agtttggatg ctgtgaagct ttgtgtcttc tttccactgc cttcccagtt 4500
tgcatttgga gtttaggttg gcactgtggg tatgtatttt cctcagtata tattaatagt 4560
aatttgactt tgcaaatgtc tgcttccaga ggtgcctcca ctgagtgcct cagatgagtc 4620
taggaagagc tgtaccgttg ggatggccac aatgattctg accctgctct cgtcagcttg 4680
gttcccattg gatctctcag cccatcaaga tgctttgatt ttggccggaa acttgcttgc 4740
aggtactggt actgagttga aacagggact ccggagaggt nntgtctgtg cccatatcac 4800

agccagtgct cccaaatctc tgagaagttc atgggcctct gaagaagaag ccaacccagc 4860

agccaccaag caagaggagg tctggccagc cctgggggac cgggccctgg tgcccatggt 4920

ggagcagctc ttctctcacc tgctgaaggt gattaacatt tgtgcccacg tcctggatga 4980

cgtggctcct ggacccgcaa taaaggtaat gtcccacttg ggtgctggat tcatattgtt 5040

ttttgttttt gtttttctat tttaggcagc cttgccttct ctaacaaacc ccccttctct 5100

aagtcccatc cgacgaaagg ggaaggagaa agaaccagga gaacaagcat ctgtaccgtt 5160

gagtcccaag aaaggcagtg aggccagtgc aggtaggaaa cagcgtgggg aagggaggga 5220

caagtttatc ttttgtgtgc atatttttaa agcttctaga caatctgata cctcaggtcc 5280

tgttacaaca agtaaatcct catcactggg gagtttctat catcttcctt catacctcaa 5340

actgcatgat gtcctgaaag ctacacacgc taactacaag gtatgggcct ctgcatcttt 5400

taaaaatata accgtgtgtt ctctccttca ccttcccaag gtcacgctgg atcttcagaa 5460

cagcacggaa aagtttggag ggtttctccg ctcagccttg gatgttcttt ctcagatact 5520

agagctggcc acactgcagg acattgggaa ggtttgtgtc ttgtttttttc tccttgggtt 5580

gtcgcttaat gtctgacttg tctttctaca gtgtgttgaa gagatcctag gatacctgaa 5640

atcctgcttt agtcgagaac caatgatggc aactgtttgt gttcaacaag taagagcttc 5700

attcttttcc tcttctgtta ttgttgatgc ctcatttttt tcactgtagt tgttgaagac 5760

tctctttggc acaaacttgg cctcccagtt tgatggctta tcttccaacc ccagcaagtc 5820

acaaggccga gcacagcgcc ttggctcctc cagtgtgagg ccaggcttgt accactactg 5880

cttcatggcc ccgtacaccc acttcaccca ggccctcgct gacgccagcc tgaggaacat 5940

ggtgcaggcg gagcaggaga acgacacctc ggggtaacag ttgtggcaag aatgctgtcg 6000

ttgctctgct tccctttttat tcccatttgg cagatggttt gatgtcctcc agaaagtgtc 6060

tacccagttg aagacaaacc tcacgagtgt cacaaagaac cgtgcagata aggtaaatgg 6120

tgttgtttgt ggatgtgaac tcattctttc tttctttttt tctttttttat agaatgctat 6180

tcataatcac attcgtttgt ttgaacctct tgttataaaa gctttaaaac agtacacgac 6240

tacaacatgt gtgcagttac agaagcaggt tttagatttg ctggcgcagc tggttcagtt 6300

acgggttaat tactgtcttc tggattcaga tcaggtttgt cacttttatc tttcatccat 6360

catattgatg taaattttat tttccttcct gtaggtgttt attggctttg tattgaaaca 6420

gtttgaatac attgaagtgg gccagttcag gtaatagcat tttattattt tagatttttt 6480

aaggatctaa atggatgttt ttgtttctag ggaatcagag gcaatcattc caaacatctt 6540

tttcttcttg gtattactat cttatgaacg ctatcattca aaacagatca ttggaattcc 6600

taaaatcatt cagctctgtg atggcatcat ggccagtgga aggaaggctg tgacacatgg 6660

taacnggaca caccttttcac tgtcgtcttc ctgataaggg taccctttttg tccccacagc 6720

cataccggct ctgcagccca tagtccacga cctctttgta ttaagaggaa caaataaagc 6780

tgatgcagga aaagagcttg aaacccaaaa agaggtggtg gtgtcaatgt tactgagact 6840

catccagtac catcaggtaa gaggaatgta tgttggaact gtcgtgcaga ctttctaatt 6900

gtgcacgctc ttataggtgt tggagatgtt cattcttgtc ctgcagcagt gccacaagga 6960

gaatgaagac aagtggaagc gactgtctcg acagatagct gacatcatcc tcccaatgtt 7020

agccaaacag caggtttgtc cccgcagcct tggcttgttg ttgtagaaat gtttgtggtg 7080

tctaattcca cagatgcaca ttgactctca tgaagccctt ggagtgttaa atacattatt 7140

tgagattttg gcccccttcct ccctccgtcc ggtagacatg cttttacgga gtatgttcgt 7200

cactccaaac acaatggtga gtctctcgcc tggctcagca gatgaagctg tgacttatgt 7260

attatgttta ttttaggcgt ccgtgagcac tgttcaactg tggatatcgg gaattctggc 7320

cattttgagg gttctgattt cccagtcaac tgaagatatt gttctttctc gtattcagga 7380

gctctccttc tctccgtatt taatctcctg tacagtaatt aataggttaa gagatgggga 7440

cagtacttca acgctagaag aacacagtga agggaaacaa ataaagaatt tgccagaaga 7500

aacattttca aggtatgctt tctatctgag cctataacta acttcactgt catcttttt 7560

ctttcttgga aggtttctat tacaactggt tggtattctt ttagaagaca ttgttacaaa 7620

acagctgaag gtggaaatga gtgagcagca acatactttc tattgccagg aactaggcac 7680

actgctaatg tgtctgatcc acatcttcaa gtctggtagg tgaatcacat tagtcttcct 7740

ggagtaaaga catttctcct taactttgtt tctaggaatg ttccggagaa tcacagcagc 7800

tgccactagg ctgttccgca gtgatggctg tggcggcagt ttctacaccc tggacagctt 7860

gaacttgcgg gctcgttcca tgatcaccac ccacccggcc ctggtgctgc tctggtgtca 7920

gatactgctg cttgtcaacc acaccgacta ccgctggtgg gcagaagtgc agcagacccc 7980

gaagtaggtt cataatgccc cacagcccag ggccattgtc aatgcatctg ttgctccttc 8040

tagaagacac agtctgtcca gcacaaagtt acttagtccc cagatgtctg gagaagagga 8100

ggattctgac ttggcagcca aacttggaat gtgcaataga gaaatagtac gaagaggggc 8160

tctcattctc ttctgtgatt atgtcgtaag tttgaaatgc ctgtaaacgg ggttgaaatg 8220

aatctctcat catatttttc cttagtgtca gaacctccat gactccgagc acttaacgtg 8280

gctcattgta aatcacattc aagatctgat cagcctttcc cacgagcctc cagtacagga 8340

cttcatcagt gccgttcatc ggaactctgc tgccagcggc ctgttcatcc aggcaattca 8400

gtctcgttgt gaaaaccttt caactgtacg tcttcatcct gccgactatt gccagatctt 8460

ttcttctttt ccttcttgct gttagccaac catgctgaag aaaactcttc agtgcttgga 8520

ggggatccat ctcagccagt cgggagctgt gctcacgctg tatgtggaca ggcttctgtg 8580

caccccttc cgtgtgctgg ctcgcatggt cgacatcctt gcttgtcgcc gggtagaaat 8640

gcttctggct gcaaatttac aggtattggg aagagaaacc ctgatattga ttcaaacaca 8700

ctaatgtgtt tttgtctatt agagcagcat ggcccagttg ccaatggaag aactcaacag 8760

aatccaggaa taccttcaga gcagcgggct cgctcagagg taatgctgga aacacaggtc 8820

gtccttgtga ctgtaatttc atttttattt gtattttaga caccaaaggc tctattccct 8880

gctggacagg tttcgtctct ccaccatgca agactcactt agtccctctc ctccagtctc 8940

ttcccacccg ctggacgggg atgggcacgt gtcactggaa acagtgagtc cggacaaagt 9000

aagtgtccag cgtgtctgca tgggaggctg ttccccttat ccatttttt cttcccagga 9060

ctggtacgtt catcttgtca aatcccagtg ttggaccagg tcagattctg cactgctgga 9120

aggtgcagag ctggtgaatc ggattcctgc tgaagatatg aatgccttca tgatgaactc 9180

ggtacggggg gagcagtgga ggcaaggaat cgtttgttaa cctttaatgc tctgatttca 9240

ggagttcaac ctaagcctgc tagctccatg cttaagccta gggatgagtg aaatttctgg 9300

tggccagaag agtgcccttt ttgaagcagc ccgtgaggtg actctggccc gtgtgagcgg 9360

caccgtgcag cagctccctg ctgtccatca tgtcttccag cccgagctgc ctgcagagcc 9420

ggcggcctac tggagcaagt tgaatgatct gtttggtaat taaaattaaa atttatctta 9480

ttttagcacc cacccacgag gtccttctgt ttcaggggat gctgcactgt atcagtccct 9540

gcccactctg gcccgggccc tggcacagta cctggtggtg gtctccaaac tgcccagtca 9600

tttgcacctt cctcctgaga aagagaagga cattgtgaaa ttcgtggtgg caacccttga 9660

ggtaagaggc agctcgggag ctcagtgttg cggcattctg tgactcggta cttcccttta 9720

ggccctgtcc tggcatttga tccatgagca gatcccgctg agtctggatc tccaggcagg 9780

gctggactgc tgctgcctgg ccctgcagct gcctggcctc tggagcgtgg tctcctccac 9840

agagtttgtg acccacgcct gctccctcat ctactgtgtg cacttcatcc tggaggccgg 9900

tgagtccccg tccatgaacg gtgggttcca ttcttctctt tgttctgttg taattttagt 9960

tgcagtgcag cctggagagc agcttcttag tccagaaaga aggacaaata ccccaaaagc 10020

catcagcgag gaggaggagg aagtagatcc aaacacacag agtaagtctc aggacccatt 10080

tttttcttac aaaagtcctc tcttaaccgt tgcttgttta gatcctaagt atatcactgc 10140

agcctgtgag atggtggcag aaatggtgga gtctctgcag tcggtgttgg ccttgggtca 10200

taaaaggaat agcggcgtgc cggcgtttct cacgccattg ctcaggaaca tcatcatcag 10260

cctggcccgc ctgccccttg tcaacagcta cacacgtgtg cccccactgg tgagtctgct 10320

cgttccttgc agaagaccag atgatgtcac ttccttttca tcttctcagg tgtggaagct 10380

tggatggtca cccaaaccgg gaggggattt tggcacagca ttccctgaga tccccgtgga 10440

gttcctccag gaaaaggaag tctttaagga gttcatctac cgcatcaaca cactaggtac 10500

tcttggggcc tctccttcag gtcacccact ctctcatgta agatttatat ttgtaggctg 10560

gaccagtcgt actcagtttg aagaaacttg ggccaccctc cttggtgtcc tggtgacgca 10620

gcccctcgtg atggagcagg aggagagccc accagaagta aggccacacc ctgtgctggt 10680

tggcacagct cttgttacat gtgggctctc cttccaggaa gacacagaga ggacccagat 10740

caacgtcctg gccgtgcagg ccatcacctc actggtgctc agtgcaatga ctgtgcctgt 10800

ggccggcaac ccagctgtaa gctgcttgga gcagcagccc cggaacaagc ctctgaaagc 10860

tctcgacacc aggtttgctt gagttcccac gtgtctctgg gaaacactct ttacctttt 10920
tctaaaatgt aggtttggga ggaagctgag cattatcaga gggattgtgg agcaagagat 10980
tcaagcaatg gtttcaaaga gagagaatat tgccacccat catttatatc aggcatggga 11040
tcctgtccct tctctgtctc cggctactac aggtacctga gggaaaggga gcgggggagc 11100
gggatcaaga ctcagggtgc tggtgttcac aggtgccctc atcagccacg agaagctgct 11160
gctacagatc aaccccgagc gggagctggg gagcatgagc tacaaactcg gccaggtcag 11220
tctcgcgnnc ccgccgcctg gcctcacact gagcagtgcc ccgtttctgt ggcaggtgtc 11280
catacactcc gtgtggctgg ggaacagcat cacacccctg agggaggagg aatgggacga 11340
ggaagaggag gaggaggccg acgcccctgc accttcgtca ccacccacgt ctccagtcaa 11400
ctccaggttt gcagatggcc tttttatttt taacagtgga aaatacccat ctcgcatatt 11460
ccacaggaaa caccgggctg gagttgacat ccactcctgt tcgcagtttt tgcttgagtt 11520
gtacagccgc tggatcctgc cgtccagctc agccaggagg accccggcca tcctgatcag 11580
tgaggtggtc agatccgtaa gtgagccttc ccattccccc cacacccctt gccctcctgg 11640
ttttccacat ctccagcttc tagtggtctc agacttgttc accgagcgca accagtttga 11700
gctgatgtat gtgacgctga cagaactgcg aagggtgcac ccttcagaag acgagatcct 11760
cgctcagtac ctggtgcctg ccacctgcaa ggcagctgcc gtccttggga tggtaagtga 11820
caggtggcac agaggtttct gtatgcagca gcttttgtct gtgtgtgcct aggacaaggc 11880
cgtggcggag cctgtcagcc gcctgctgga gagcacgctc aggagcagcc acctgcccag 11940
cagggttgga gccctgcacg gcgtcctcta tgtgctggag tgcgacctgc tggacgacac 12000
tgccaagcag ctcatcccgg tcatcagcga ctatctcctc tccaacctga aagggatcgc 12060
ccagtgagtg ggagcctggc tggggctggg gcgctgagcc tggatgctgt ctcccgtttt 12120
gagctgcgtg aacattcaca gccagcagca cgtactggtc atgtgtgcca ctgcgtttta 12180
cctcattgag aactatcctc tggacgtagg gccggaattt tcagcatcaa taatacaggt 12240
gagtgggccc tggctgtctt cctctgcatt tgacacagag gcctttgtcc ctgtgcagat 12300
gtgtggggtg atgctgtctg gaagtgagga gtccaccccc tccatcattt accactgtgc 12360
cctcagaggc ctggagcgcc tcctgctctc tgagcagctc tcccgcctgg atgcagaatc 12420
gctggtcaag ctgagtgtgg acagagtgaa cgtgcacagc ccgcaccggg ccatggcggc 12480
tctgggcctg atgctcacct gcatgtacac aggtgagcat gtacacggtg cccataaggc 12540
cataaccttc gtactgaaca cttttgttac aggaaaggag aaagtcagtc cgggtagaac 12600
ttcagaccct aatcctgcag cccccgacag cgagtcagtg attgttgcta tggagcgggt 12660
atctgttctt tttgataggt aagaagcgaa ncccatccct cagcccgttc agtctctgac 12720
ctgcgtccct cctcccagga tcaggaaagg ctttccttgt gaagccagag tggtggccag 12780
gatcctgccc cagtttctag acgacttctt cccaccccag gacatcatga acaaagtcat 12840

cggagagttt ctgtccaacc agcagccata cccccagttc atggccaccg tggtgtataa 12900

ggtgaggttg catgtgggat ggggatggag ttgacactca ggcgcctgct tgctcttgca 12960

ggtgtttcag actctgcaca gcaccgggca gtcgtccatg gtccgggact gggtcatgct 13020

gtccctctcc aacttcacgc agagggcccc ggtcgccatg gccacgtgga gcctctcctg 13080

cttctttgtc agcgcgtcca ccagcccgtg ggtcgcggcg atgtatcctc tctggntccc 13140

tggtnctggc ccgccggcct ttttccttaa ctcctgcacc agcctcccac atgtcatcag 13200

caggatgggc aagctggagc aggtggacgt gaacctttтc tgcctggtcg ccacagactt 13260

ctacagacac cagatagagg aggagctcga ccgcagggcc ttccagtctg tgcttgaggt 13320

ggttgcagcc ccaggaagcc catatcaccg gctgctgact tgtttacgaa atgtccacaa 13380

ggtcaccacc tgctgagcgc catggtggga gagactgtga ggcggcagct ggggccggag 13440

cctttggaag tctgtgccct tgtgccctgc ctccaccgag ccagcttggt ccctatgggc 13500

ttccgcacat gccgcgggcg gccaggcaac gtgcgtgtct ctgccatgtg gcagaagtgc 13560

tctttgtggc agtggccagg cagggagtgt ctgcagtcct ggtggggctg agcctgaggc 13620

cttccagaaa gcaggagcag ctgtgctgca ccccatgtgg gtgaccaggt cctttctcct 13680

gatagtcacc tgctggttgt tgccaggttg cagctgctct tgcatctggg ccagaagtcc 13740

tccctcctgc aggctggctg ttggcccctc tgctgtcctg cagtagaagg tgccgtgagc 13800

aggctttggg aacactggcc tgggtctccc tggtggggtg tgcatgccac gccccgtgtc 13860

tggatgcaca gatgccatgg cctgtgctgg gccagtggct gggggtgcta gacacccggc 13920

accattctcc cttctctctt ttcttctcag gatttaaaat ttaattatat cagtaaagag 13980

attaatttta acgt 13994

<210> 10
<211> 118777
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(118777)
<223> LOCUS AF163865 118777 bp DNA linear R
OD 24-JAN-2001
DEFINITION Mus musculus alpha-synuclein (Snca) gene, complete cd
s.
ACCESSION AF163865

<300>
<308> AF163865
<309> 2001-01-24
<313> (1)..(118777)

<400> 10
gaacctcaga cagctgacag aaagtcctcc aattctgagc tacaggagtg aatctgctac 60

tgaaaacaca ggcagagcag acacgctgct gtagacacag aggaagatga cagggacagg 120

aagatgtaga cactgatagc aattagctaa ggagattcat ttctttttc cctaaccagg 180

caaggaccct gactagaaga cattttgttg ttgaaacatg ttgttgaaga tacagttttg 240

gggatgtatg tgagaaaatg aagagtaaac ctgaatttaa caagccatgg ctttgggtct 300

ggtaccatga cgaagcataa gttacagaat actttctcgt tgccgttttt tggtttgtaa 360

attcagtcct tcaaatatcc atacatactg ggctcttgag aacccatgaa gaaaggatgg 420

aatacttggt gtttatgcaa acttatttaa tacctactgc aaagttcaag tcaaggctta 480

atgccttgac tactttcaca atcagccact acttattgga ttgggtggtg aaaacatggc 540

tgagacatct tgtagtcata attttttttt aaagaaaagt acctgatcct tcttagaagg 600

gggaacaaaa tacccatgtg gggagataca gagacaaagt ggaacagaga tgaaaggaaa 660

gaccatctag agactaccct acctggggat tcatcctata tagagacaac aaatccagac 720

actatagtgg ataccaacaa gtacttgctg acaggagcct gttgcagttg tctcctgaga 780

ggctttgcca gtgtctgaca aatacagagg tggatgcttt cagccaacca ttggactgag 840

cacagaggcc ctaatggagg ggctagagaa aggacccaag aagacgatga ggtttgcaat 900

cccataagag gagcaacaat atgaaccaac cagtaacccc agagttccta gggactaaac 960

caccaaccaa agagtataca cggagggact catggctcca gttgcatatg tagcagagga 1020

tggccttgtt aatcatcaat ggaaggagag gcctttggtc ctgtgaatgc ttgatggccc 1080

cagtgtagtg ggatgccagg accaggaagc aggagtgagt gggttggtga gctgtggggg 1140

atcaggaaaa gggataacat ttgaaatgta aataaagaaa atatctatta aaagaaatta 1200

cccttcatgc tgtcaaacac cttttagttc ctgtaatcag gcttcctggt tcttctttct 1260

tccccttttg acacagactc tatgtccaca aggctagcct gactgttgca gtaattctct 1320

gaccaaatct ctcaagtgct gaaatcatag gcactaacta ctaggcctgg ctctaacact 1380

ggatttttaa gatcctataa atcctggaca ctttaaactt ctattttact cagaattttg 1440

ttggagaacg tactgtgtgg gacacaaatc actgctatag tgtttccaga aatttgaaga 1500

atactgagtc ctgttatgtg gtgactgaat ggagctgtga cctcctacaa agtagagctc 1560

aaggttctac attctctgtg gggtctccag taattccatc attgcaatgg actcctgcca 1620

ggaccatagt ttcagaatgg agtgtagaaa ataaatagta caacatctgg gtaagaaatt 1680

tggagaaaca tgatggagcg cttcaaagct gtctacacac acacacacac acacacacac 1740

acacacacac acacacgtga tcatgatgca ttgagagtaa gaataacaac attgctaaag 1800

agagtttgtg ggtacagaag agaaagagaa aaatgcttaa attaaacatg caaataaaac 1860

ttcatttaag aagtttgcag aatgaatctc caagctctaa agacaaatat tatccaaaac 1920

tactatgctg gaatgccagt caacacaggg gccactgggc aagttttctc taatttaaac 1980

aaaaccaaaa accaaaccaa accaactaat taaccaaacc aaaatcccaa ccaaccaact 2040

aaccaaacaa gcaaacaaaa atcctggaac aacatgagag cccaaggact gtgaatagaa 2100

tctcaatatt caaggtgtat ttgggaagct ccagcaagtg agctaagacc acaaggcaga 2160

ccagggaggg ataaagagac agtctctcta gatcaatctc taaacagtca tagatacaaa 2220

ctacacaggg gcttactagg ccacagttta aatttcacac aaaaaacaaa attcattgaa 2280

aagctgatcc cttagagtat gtaaaaattc cttgtttctg ctctagttgg cagtgtcatg 2340

agccttatca actggatggt gcagggactc catgttacac aatgtttttc ttcttctatt 2400

tgtttctaaa atcagtggtg agatcaggca catttttaaa aacatgacca tactcttgtt 2460

cattaccttc tcaagtaaaa aaaaaaaaaa acctatgatt tggcgggttc tgattatgga 2520

gggctgaaat agtaatatca gtcatgaaca gctgagagca ctggtttctg agcctctgat 2580

tgaagcttta gaatcctgtg tttggatgta taatattaaa gaaacaatag tcataagcct 2640

cagcctgtac tcaagatagt tttaaatgtg tggttatttg ctggtatgta tgtccgtgca 2700

gcatttctgt gcctgatacc tgtggaggtc agaaaagtgt gttggatttc ctgggattgg 2760

agttacagac aattttgagc tgccatgttg gtactgggac tcaaatccca gtcctctgca 2820

agagcagcct gtgcccttat ctgctgagcc acctctctag ccccattata acaagaattt 2880

ataaagctga tgacctattc catgtatccc ctagttcatt gcattgtgag agtgaataat 2940

ggtatttgta gataggttga aattataaat gtatttccta ttggttcatc atgagccaga 3000

catacagctt ttccaagatt taggttccct ggataaagcc ctcagtcata ttatcagcta 3060

tcaatgtaat gttatgttgt aaatataaat attagcccta gtacactaag gtagccacga 3120

gaagacttgc tgtgtcttaa acaagagaaa tttgttttct cacagttctg gaggttagaa 3180

gtctaatatc agatgtcagc agggttgatt tattctagtg ctgctgtcct tggctcacag 3240

gccactgcct tcacagtgca gcctctatgt ctacttctaa tgtattctag cctactcttc 3300

ttgtaaatac atcaatcatg gtagatttgg gcactcttca atgacacatt ttaaccttta 3360

tgtcctcata ctgagggtaa gaacttcaac acacagttgt aaaaatttat ttgtaagtca 3420

tttacttaaa aagtttttaa taacaaaatt tttcgtgtga atataacgca ttcagattac 3480

tctcatcttc cactgtcttt tatttaccct ttactcttat caaatctcac tgtcatcccc 3540

ccccaaaaaa aactcttttc cacatttatg tctttttgtt ttgtgaccca ttgagtttaa 3600

atatgtccat ttatgtgaca atgaatatgt gaccattgga tcctggtgag cttactagtg 3660

ggtacacagc taaagacaat gactttatgt ctttcaccat ctatcaatag caaacaatta 3720

atcatggaga ggtaggggca catacaccct tctactggtg gtacataatt aacaggcaca 3780

gtcttgaata gatccagtgc caagaacttc agctgctgta agctcatgat taaaatggct 3840

gtattatggc ctgaagatta tgttttgtac tctttctcca taacatttag catattatat 3900

tcttcccctc ttcagctttc attccataaa ctttagatgt actggttcaa atgtcctgtt 3960

tagggatgaa atatggagac aaagtgtgga gcagaaactg taggaaaggc atccagaga 4020

ctatctcacc tgaggatcca tcttgtatat agacaccaaa cccagatact attgctgatg 4080

cccagaagtg cttgctgaaa ggtgcctgat atagctgtct actgagaggc tctgacagag 4140

cctgacaaat acaaatgtag acgctcacag acaaccgttg ggctgagcac gtaggtccct 4200

gataaaggag ttagagaaag tagggttagc aaccccatag gaagaacaac aatatcaacc 4260
aaccagaccc cccagagctt ccagggacta agccacctac caaggagtac acatagaggg 4320
acacatagct caggctgcat atatatgttt ttcaggcatc aatgggagga gaggccctcg 4380
gtcctatgaa ggctggctgg atgccccggt gtaggggaat tggagggcag ggaagcagaa 4440
gggtgtggat gggttgggga gctccctcat agaagcagag gaggggatg ggatagggg 4500
tttcaggtgg ggatcaggaa agcagataac atttgaaatg taaataaaga acatattccc 4560
cccaaaaaga caaatatcac atcacacaca cacacatgtg cacacacaca cacacacaca 4620
cacacacaca cactcagaga gattgagaga gagagagaga gagagggaga gagagagaga 4680
gagagagagg tgcagagagt ggaagaggca gtttaaccag gacagttgaa cagagacagg 4740
ttgcacaaag agaacaagct agacacagaa gacagaataa accaagggat gagaaagagg 4800
cagagtagaa catattgcca aagttagtat caggtcaagc agagcaattt agaagaggcc 4860
gagagagaga agccagaatg aatcaatcag tgtggagagg attttgagcc ataacagctg 4920
agttgaacca tgtagagtta aaaaagaaca agagagggtg agcttattca tcattaagtc 4980
ttagaggctg aaaatattct agacctagat aatactgtat ggagggtaga agcttccagg 5040
actaggccta tgttagcaga gagaggcagt aagcctctga tatgacaatt acattaggtg 5100
aaaaatagtt acaattacat ttaggtagca tgttttcatt attcatcagc tgacagacat 5160
ttagaccgtt tctatttcat ggctattatg aatagagaag aaattaacat ggatgagcaa 5220
gcctctctga agtggaatat agagttcttt gggaatatgc ccaggagtta tacagcgtga 5280
tgatatggaa gacctacttc ttctcttttg tagaaactct acattgattt tcatagtgaa 5340
tgcttcccct tttctccaac catcattaaa ttaatgtttg cctttcccaa gtctgtacta 5400
gaatttgtta tttgtccatt tgtcttagac atcctgagtg gggtaagact ggggcctcca 5460
gtctcttgag ggttaggtgc atcatctctg tatgaacaca gccttggcag tcctctactg 5520
taagtgtttt gggggcctca tatcagctga tatatgctct cggtttggtg gtccagtttt 5580
tgagagatct tgggggtcca gattaattga gactgctggt cctcctacag aatcaccccc 5640
tttctcagct tctttcagtc ttccctaact cggaaacagg ggtcagctgt ttctgtccat 5700
tggttggttg caagtatctg catctgacac tttcagctgc ttgttgggtc ttctggtctg 5760
tggtcatgat aggttggtcc ctttgtgtga gcgctccata gtctcagtaa tagtgtcaag 5820
ccttgggacc tccctttgag ctggaatcca ttttggacct gtcaagggat cttcttcagg 5880
ctcctctcta tcttttctca aatgtatagc taataaatat tttgaaaatt tccctcagtt 5940
ttcagaatgt ctcttcacac aaaggatggt gttcttttaa gcttcacagc cctatttgtg 6000
agttattctt aatatctgtt caactgtgtc ctgttccaca acctataagt tgaggtatat 6060
tttctttctc ctctgaggaa tcatgttatc agatttgtgt tgaggtgctt ggagttggat 6120
tttgtacaag gtgaagtaga agaatctagt ttcacttttc tacacattgc tattcagttt 6180

gaggaacata attgaactat tctgaactga gattctctaa actgaacaga actgaattga 6240

actgaattga aatctctatc cttccctgat gtttaagtag cctctttttc ctgtctgttc 6300

ttgtgagagt taggcatatc ttatttgtgt ctcattctgt aaaatctttg tctgtacctc 6360

aattagatat cactgtttgg gattaaaggt atgtacaaaa gatatgtcta aatcccagcc 6420

agggaaatta aatgtatgtc tactctgcat tccagtagaa ttatatcttt gtatgtgatt 6480

ccttgcccaa gcacccatgt tgcttgatta aaacctctac aacatttatt ccaagatatt 6540

ttatttttc tgtggttatt gtcaccactt aatttgatga cataattatt aaaataatta 6600

ctctcccccc gaggaagact gagctacacc atctctatgc tagctcaaga catacttcct 6660

actggcatga ggattctaat tgactcccta tcttctgaat tcagagtgag ttatatatga 6720

cacacgatat tcattaacac aattaaagga taagtatgaa tatttggtag tttttaatgt 6780

ggtcaacagc atccaacaat gacaggagag tttgaaaaaa tttcatagga aaattgtcac 6840

tggtttttaa ttaacactta aaaggtgtaa catttttttt atgctattaa gctctattcc 6900

aaaaagtgtt aagttcattt tgtctatttg ggaaaaagaa gaggtagaaa atatcttgag 6960

aagaaggaat attgtgatca caaggctaca gtgaaatggg ccatgtccac tagagtagta 7020

gaggaaaagt aatagaggaa attatcatgt attgtaaaaa tgacacttta ttatcagcaa 7080

ggtggagcag tagaatgttt gtatgctgcc tagataggaa tgaaagagca tgcttctttc 7140

tttgatggga acaaatgact ttgtacagaa acattttcct ggagataggt ctctgagatg 7200

tggaaccttc cctagtgaaa aggaccatgt ttcctgctgt gctgccatga atatttttag 7260

tcttgctcat ctttggctaa gcctcagtgt ttgtggatac cagatgcatt gtgcaggtgt 7320

gatgtggaaa caggaaatct gactacttgc catattctca aacatatttc ttatctccct 7380

gaagcaaaag tagaacataa aacatttctg ctatcaccta ttctaattaa atgcatatat 7440

aggattattt attaaaaata gtatttatga aaaaggctga aagctctgtg atttttcagt 7500

taactccttt atgcacatgg ctatactgct gatatctgat gaatatgtgt ctgatgctat 7560

ttgtgttcat cacttttctg ttgccgtgac aatataccac aaccaaagca tcttatagaa 7620

ggaagagttt atttggctta tggtttctta tgaagatcct gaaagtaaag gaagccctga 7680

aaaaccattg tgtgaggctt tgaaaatgaa gcctgggtta cagtagatcc caaaggcttt 7740

agagattcca aagccttaca cagtggtctc tcagggcttc ttttcctttc agtatcttca 7800

ttcaggatga acttgccaca tatagcatgg cctcagaaac tctctcaaac aatggagaaa 7860

actccatgag cccttaactc ttaaaaaaca aacttccaca atattcatgg aaattatgat 7920

attcttggac attaatctat ctctgaagat gcatcttcca ttagagtcta taaaaaggta 7980

aacaagagaa aacaaggcag agaaaaaaaa tagataaagg taagtggcca aaggtttgta 8040

aacaacactg agccaaaaat tcctggcctg gaaatgagta gagtaaccag atcataagga 8100

tggtcagaat ctcagatgtt taagtgaaac tgtattctcc tacataacaa aatcattccg 8160

tgtcagcgcc aacatggctc caaagagtca gatctggtca acagccaaat ccttaagaaa 8220

tctagctcca agttcatttc caactgacta gaggtaaatg ttatgctttc ttctgagtaa 8280
ttttctctaa atgatttaaa gaaagggtga agataattta gaactcaaat taaaggttac 8340
taaacaaaat tcaaacttca ttttccagtt ctttttcagt ttgtttttta aaaatataat 8400
tatatcattt ccacttttct tttttctttc tccaaactct cccatatagc caatttgctc 8460
gcaaattaat tgcttcctct ttataaaact gttattacaa ttttgcatat tatcattttt 8520
aatactttat agtatctgca ataacaataa ttaatataaa cataatacta atatataata 8580
tatattttcc tatacataaa accaccacct ccttggactg tataatgtta ctgtgtgtac 8640
atgttttgag ggttggtcat ttggtattgg aaagatcttc cttggggagc attatttcta 8700
ccattctcat cactccttag gaacctacaa ttctttgtgt agggtttgag gcctcttcag 8760
cccccattca cattagcatg cgtattggtg tgttccttgg ttgggtcatg tttaggcacc 8820
catgaggatg agactttggg tatagtttct tacatttctg ggagacacag ttttacagca 8880
cactctgtgc tcctctggct cttatagtgt ttctgctccc tttccagaag ggccttcaag 8940
cctaaaggaa ggacctgtgt tgtagttaca tcagttgggg tgtggctcta caactctgaa 9000
ttttaattgg ttctggtttt ctgctatagt ctctgtctgt tgcaaagtga agtttcctca 9060
atgagggagg aatgagaatt atacttatct ataaatataa tgacatacat ttcaaatgta 9120
gttagagatt ataattgttt gtaggctctc caatgttcat gactttgcaa gtcctgggta 9180
gttggctagg tttcaatgac cagacatgtt ttctcccttg ctgtgcaggt cataaattca 9240
atgagagcta ttggttgtca cgaaggtatg catgccactt atacacccca agggttatca 9300
ctccatgctg gtcacttgtg tttcacaggc atatatctgg gtagaacaag gggttgcttc 9360
tcacctttgc tagtgtacat ggcaccttct ggtactgaaa gctactcctt agggaggagg 9420
cttttaggtc agttccagct tagggcctct gtgctccgtg tttgaagtac atattgtcat 9480
cagcaataac aatttacctt ctacttctga aggacaacca aaagaaataa tatcagtaac 9540
gtataatgta ttctgtgtct cttctataat cctgaccaat aactcaaaag aggatttctc 9600
actcatcaac ccctgtaagt atcgttgttg ttttgttttg atataattgc aatatttcac 9660
ctctcttttc ctctcttcaa gttttccagt atacctctcc caggtctcct tcacattgaa 9720
tgttctcttt ttctttaact gttattgcat aatatatgta tatacatatt tattcttcag 9780
tataacctac tcagcctgag agtgaataat gctacttgaa tgtatgtttt cagggctgac 9840
cacttggcac tggacaagca atttgtatgc tcttctctac agagatcata tctcctgcac 9900
ccagcttttc tcagttacct attgtccttc atgtagcatt gaggtctcat ggacttttcc 9960
ctgtccactt tgacatttcc ccttgtgcta accttgttca gttcaggttt gagtagtcat 10020
gaatgtgaga cttcatgggt atagcttctg acattattag cagacataat ctcatgcaaa 10080
ctttcttgat cctctggctc ttacaatctt tctgtttcct cattcataaa tgtttctatt 10140
gggactgggc tctaaaactt tgtattttga ctggttgtag cttttctgta gtggtctcta 10200

tttgtttcaa agaaaagatc ccttataagg agcaaagtct atacttatct gtgggtataa 10260
caacaaatgt ttgtagattg tagttaggga ttattctggt ttagtaaatt agtggttgta 10320
gtttctcctc caacatccat gacttcacta gcactgacta gttcactagg ttttcaggta 10380
ccaggcatgg tttctctctt gctgaatgac tcatacccac aattagaggg ctgttggtta 10440
atactcacaa gtatgcatgt gactcctgca tgcttttggt tatcatggac cctgatgcca 10500
ctgaaacaca ctaacatcac ctttttttat tttatcgctt tcaagaaaca gaaaataggg 10560
tctctttagg gagcttgaaa ccttggtttg tggagtattg tttgaggaca cccttccctt 10620
catttcaatg caaagtagac ctgtccttaa tggtgtaaaa cttttaaata attacagcct 10680
tccttctgtt gctttggcag taacataaac atactgttgg tctttttctc tctaaactat 10740
acattttgta tttctgcccc agttgctctt tctttcatta tagatctgca taagtgttat 10800
agtacaacca ttccacagat tcatcattat gttgtcttac aatcacttcc actaaagaaa 10860
ttcatccttt acttttcaat tgagtctcag gcaagtattc tgctcaggac atgagcagaa 10920
ggtggccaca aaccatgatg aaaaaatgaa tagcctccaa cacacttgct gttaacgtcc 10980
ttcattcctt ctgaaacctc ttggtccagg cttctacagt atttatccct ctcagccctg 11040
ctgtcttcca atcttctacg agaaggacct tttcatctct gctcatagca ttcatctgcc 11100
tttcgctttc aatgtttaca ttcctccaaa ccccaaaatg attgggttct tcacagaaat 11160
agccaacttt tttggtacca acttctgttc tcatttcttt tctattgctg tgaaagacac 11220
cacagccaga aagcaacttt ggaggcgaac ctttatttca gcttgaaggt tatagtttat 11280
catcaaagga agtcttggca gaaactgagc cagaggccat ggaggagtgc tacttgctgg 11340
cttacttcca gaatcacatt cagctacctt tctttcttac atgtcccaac ttcattgttc 11400
acagtagact aaactctttt acatcaatca tgaagcaaga aaaccactac atatacaccc 11460
acaggccaat ctcacaggta tcagttaagg ttctcccctt ctcagacata tctcaattca 11520
taacacgttg taagcacaac cagcacacta ttcaaacaga tttgcttagt gatggggaa 11580
gcaaaaggaa ctgtcttaga ctgatatgct tgcaatgttt tcaaatagct tcatctctgg 11640
actaaatttt gggtttttt tttgtttgtt tatttcaaat gtttatattt ctttaatttt 11700
gtaatgtaaa tatgctgaga aatagtatat agtatttgtt gaagagcttt aattcaatct 11760
ccttgaactt catatccaga tatcaatcac tttttataaa attatatttt cttttgccct 11820
aaatacgtga cctaggaatc agtataaata taataaaatg taagtataaa tgcaagcatt 11880
tatgtgtcaa tagtctttgg cctcttagtc aattctttct ttctttcttt tttgtttgtt 11940
ttcttcaaga cagggtttct cagtatagcc ctggctgtcc tggaactcac tctgtagacc 12000
aggctggcct tgaactcaga tatctgcctg cctctgcctc ccaagtgctg ggattaaagg 12060
catgtgccac caaagcccac tttcttagtt agttcttgtg gctgcttaaa catggtttca 12120
tcgctagttg gaaataactt acttgccaga gtaagattaa tggagagttt gtataatttt 12180
tcttcttttt cgccaattag tatcactctg gaaacatatg cagatctgct tattaactgg 12240

gcaaatttca attgggcaga catattttat tatatatatt ggtttcacct aagaaaagca 12300
cagcaatgtg aatactctct tttttctttt gtttgtttgt ttcctgatat atattgcata 12360
agctaagtgg gtcacccatc atcacaacac ttgtttgtat gctttaggtt gctatatgct 12420
ttaaaaaact ctgggaccag aatggttggt catgtcctaa tggatgaaac acctttcac 12480
ataaagagtg ggtgacttag atagatacct gagcaaaaat tttacatgga caattgcttt 12540
ggcaaaaaaa ttatggaaag tgcaggatca ttatcaacag tttataaaat ggtaaaacat 12600
gtttcttgga catatgtcaa cattctgagg atgtatattt tataatcatc aaggaaagat 12660
tgtcttttaa tataaaattt tagtcaaatt taaaaatttg tttgtgagga agactgatac 12720
catattgagt ttaatttttc tatcatcatt gatctaattt ttttcaacta acagtaaaaa 12780
tgaaccattc tatatgtatt gtatgaagtc tgttcatttg tcacagaaac tcatgttgat 12840
ttcccatctg tctttagtgt tattttaact acttaaataa tctctataca taagaccaca 12900
gcacaagata attaaggagc tagaatgctc attcacttaa ttattgccca acacacttac 12960
agagctccat tttacatttg aaaaatttgt caaattgttt tactctctct ctctctcttt 13020
atatatatat atatatataa aaggtgtgtg taatagtatg tgtgtagtat atgtatgtgt 13080
gcaaatgtgt tttaatatgt atagtctatc actctctatt ttcagtatca ttaaaaattt 13140
tatgctattt ctttgcttga gaagaaactg cacatttgag taaaataagt tggatttttt 13200
ctttggataa ttacattgtg tgaagatgtt taaataagtg ttttttttcat atgcacatat 13260
taaagatcat ctgtgaaaca tctatatttg ttatgaatta aaaagacaaa tatttagaaa 13320
gccatatttc tatagtctag gctttgacaa gtaaagtgag aatccatagc tctgttcttt 13380
ccatcttgag catgacacac acacagtctc tttgtaaatt actcaggctt tcttattctg 13440
atataaatac aaacacaaaa taacttgtat tttgatgaga aaactgaagt ggaacttaaa 13500
tataaatgga cttgaagatg ctatatttag aagctaaagt attactttgc ccctaatttc 13560
attttctaat ttgtttaatc acttgttcca tatttgatat ggaataacaa gctttcacaa 13620
tactgatgat gcattttata taatgttgta ggcaatcgtt tcaatgctac tccatacttt 13680
caaattgtct aaacaggtaa aaagtattag aatctctgag cgcctgctgg acatgctcct 13740
tttattgact ttctgttatt tatttccttg aaaggcataa taaccaaatc aatactgtca 13800
gaaaaatata aatcctcttg gtatgctatt ttatccactt atttttccct ctgaaaataa 13860
atattactga aaaatatatc tgtcttatta atctgcccag ttttgctcac aaaagatatt 13920
ataagttgga tttcataact tttctatctg gttggaaata ttttacatcc tatagtaaga 13980
taaagctatt gatggcagtc acagacatct caggtatctt gtgaatgaac taagaaatga 14040
ttcaaggctg caaataagac ctgaccaaat taaaagaaat gcttcctagt tcaccctaaa 14100
catcagttta cataaaaatc tccactcatc gtactaaaga gacagtttag taattaagag 14160
ctcaaattgc tcttgagatc tgagttcagt tttgagcacc tacatcagga ggctcaaaca 14220

tcctgtatct cctgcttcag gtgaccttat acctctaggc tccttgagca ctggattcat 14280

atttatacac actaaagtaa acattaaaaa catgcagtca tttttaagaa tgcactcagt 14340

tgaattattt ctaagaacac tcttatttct gtcattacac aatacacata aaatacctgc 14400

cctattttac agagattaga gaggtgaggt gctagctcta actcactgct agttcatagc 14460

agcacacagg tccatctagc ctctgagttg tatgtggaca ccctgtctca gatttatgtc 14520

ctgctttctg gagttgagtg catttctggg gttcatcagt atgatctttt tcctcatttt 14580

gaaataaata aatttcttat attccaaaat atcaaatgta ttttctattt ggttttatag 14640

tctttaagtc ttgaaatcat ggacatcttc attttcatag gactacagca atggttgtga 14700

tgtttagaaa gacatccaac tgaattattc acatatgcca tgctattttc ctgtggccaa 14760

agttaacacc tgttcttcat tgttgttcat taccctctga gcgtgtggaa taatagaata 14820

aactgcacaa gaggtcaaat taaagatttt cttcagacac tacattccct cttcattgat 14880

tctttttttct ttttaaattt agtgtcccat tattgttctg tctcaagttt aaatctttga 14940

aaatgaaata tgattatcat cttaaagcca tatattggca gcttctctgc tgcatatccc 15000

atataagatt gtaagataca tatatgcaga tttcagcagc acatgtctca tgtaattaca 15060

gaagatgaag gagggacagg cagatactaa gaagcacata atactaagca tattatgtct 15120

gtactcagtt aagcccatta aatcaacgct ttccaccctt ttaatcactt tgcgaccatc 15180

agcttccttc tcaccatgac atttcactct gctttctttg taatagtgta ctgttaaact 15240

caggacaaac ctcaaaactc acttgtctca tgggaaatca aagagagtgc aggtcaagta 15300

tatatttgcc tagaacatta atctacagca taattacgtg attaagctca gttaaatcaa 15360

tgctattagc atggcaaaat attagatttc actcgtggga gagcacctgc acacatcact 15420

cacatgtccc attaagttgc tctgccttac actacaggct ttgagtttaa actttaagtt 15480

ttaaagtgat tttcagaaca aggctttgat actaatggag gtgcgggaca gaaaggagaa 15540

aacaacagga atgtccagtt cctctctttc ttacagaggg ctgcagctcc attataaatg 15600

cagagacaag aacccacagg ttgatcttag aaaccgtcag catagtttga aaagctgctt 15660

actgtgctca gagtgctttg aagtgtgtat agaataaagc agaaatataa taataaatca 15720

aaatggtgaa aattatttta caattttatt gtagtctttt tgtaatctgt gcatgtgtgt 15780

gcgtgcatgt gtgtgttcat gcatatgtgc aagcatgaat gtgtgtgtgt gtgtgtgtgt 15840

gtgcatagaa agaatttccc aacaccaaag aacgctgata cagatactcc aaatataact 15900

gatatgtgtc ttcatgtgta cctcagctcc cgattttcca tgttcatatt cacatttgag 15960

ggcgatttgt aacacagctg ggtcctacct tgttactttc catccctgct ctgggagact 16020

tcacagactg gtttacagtg atagaggatt gtgccttctg gaaaagccta ctggattatc 16080

tcatatctga ctctgatgtg atctgagtcc aatgcactct cagagctcca gtttccctgt 16140

ctagaaaagt gacacaaaac taaacttatc cccttgtgat gattaaacgg ttcagcacct 16200

ctgttctttg ccagacataa agcacagtgc acagatgtgg agttatggag ccattgtagg 16260

aagcacaact atcccagtga gtccttcgtt gctcggcagt tgggccttaa agtatctgac 16320
attttatttc tcttttaact gaaatcccaa ggcttaagag gagatccctg tgaatttata 16380
aatatgtcat atcgggaaat atattaggta gttgtcactg cagtctatcc aactaactga 16440
attttatggg tcactgtgaa aatgcattat tggcagtaat aaaagaagaa aagaaactaa 16500
taaactagtg atttatgcaa cagcataggt gaactaacac atcatgctga ctggtataaa 16560
caaaggccat atactccatg gatatgtaca gaatcaaata gaattataaa catagttcaa 16620
agggatgaaa catttccttt tatcttttga gatttcactc aggtcagata actggccaga 16680
ctgtgtgact gaagataata gaaaccagac agtgctgatg ttaggagcaa caccctgacc 16740
agtaccgctt agttttgcat gcaatgagtg ttctagatat tgaaatagtc tctctttaaa 16800
atggtatgct atcacttgga ctttttcaaa atctgcagac acaaaatcag agcagttcac 16860
tctataaact ataattcaat gtagaatatc atttgatgcc atcctgggta tttcagtcat 16920
tctcacattt attaatgtgt gctagaatgt tcccagatgg aaaaacatga aaagcttaaa 16980
tctctagaag gagagaagtc gatagtgaca gagtagccat gctgaaggca cagaatgatg 17040
cttgtggaag ctggtgatat ttatgtagga atcttagtct cacaactgta aatatgttta 17100
aatgttttac attctaaaat tttagaggag aggtgtcatc tcaattcact ttctcttcta 17160
taatagaaaa aaaaaaaacc tggctaaata gaacataact tggtaaagtt ctgagaggca 17220
gaaaaccaac gcccagacgc aaccaaaaca ggcctggcaa aacattatcc cgaggaaacg 17280
tttgtgtcct ctcatctggc tttagactat tgacaaatag accccaagaa attggaagtc 17340
ctccaggaat ttgctgaggg aaggaaaagg ctgaagcctt gtgtcaatta cagggtgagc 17400
atgtctccca ggaagaaata tcagatatca gatacttagt cagacctcct tgcagaagag 17460
actggagcgg agacagagac agtagctgga agcacacttt gacctactgc ttagtcatac 17520
atacatcctg acctctatct aaacaagatg aacttggggc actaaacctc tgttcctctt 17580
cttaacgtgg ccacattgaa ttactcccat ttctagtatt tcactattta tatgtcactt 17640
tacctggctg gttgaggaca ggtgtcctaa cttggcagga tggggatgct agagcccagg 17700
atctaaccct atctactgca gaggtgccac cttttccttt aatttcaagt aaacatggta 17760
tgtgccacta gtgtgtagga aggttgattt ttaaagggaa taagaattga aggcgttgct 17820
taaacagtta atttctgtca cattacttgt actctgcatt tgtggtttta tctgcctcct 17880
tcctttatag catgccaaac aagctgcttg tcccttgttt caaatgcttt tttagacttc 17940
aatttattta tttatttatt tatttattta tttatttttc aggattcaga agtcaactga 18000
cttcaaggat cagagaaagc attccctcct acgacccccc ccccctttta atacagtaaa 18060
cgcttgattt agcttccagt gcccaacaca agttcagaat acaagaaagg aaaagcaagg 18120
cactctgctg ggggaggagc ttggcactca aatccactct gctataaaac agtggtattc 18180
tgctcatctc agagagaagt gggaacgtgt taagtaacac agaaattgtc tcaaagcctg 18240

tgcatctatc tgcgcgtgtg cttggattgg aagaagagtc tgttcgctgg agctccacgc 18300
agccagaagt cggaaaggta agaggtgtgc aaaatctgcc attaagtagg gactaaggaa 18360
gaaactgcct gtgatggtcc cagagggtga atcccacagc cgctaccttc ctatcctgta 18420
actctatagt aagccacttt ctcaagtgca aaaaagcctt gaggcagctg gttttcgacg 18480
gttgggggat atttattcct tgctccacag atggggaaaa aaaaatcagc gtctggcagc 18540
cgctgattgg tggaaaagaa aatggtgata gtggagtggg aatgaggatt tgctgagcct 18600
ccccctgctt cttcgacctg taactcttcc ttagtcggct ccccttttgca cccagaaccc 18660
ttttagactc ctccggggta aaaacaaatg gaaatcttaa gctgtgtgaa caaaagcaac 18720
cccaagggtg tgtgctccct ctccattgcc tggctccgca cacagaccat ttcaggcggt 18780
ccagctctct ggtgtggcat ctgggctcgt cctggaggag ggggtcgcct agaggaactg 18840
ggaacagact gaggcaggga aggaggggggg tggggcagga gaggcgccag ctcaagttca 18900
gccacgataa aactgagggc cctctgaact cgaggggagg ctcaggccgt cctctcttcc 18960
ttccatccgg gggaatgtgc tccagatacc cacagccctc acgcaccgca cctccaacca 19020
acccgtcccc tccctaggaa gaggagcgaa ggcacgaggc aggcgagggg cggggagagg 19080
cgctgacaaa tcagctgcgg gggcgacgtg aaggagccag ggagccagag cgcccggcag 19140
caggcagcag acggcaggag accagcaggt gttccccctg cccctgcctg cccttgcctc 19200
tttcattgaa attagattgg ggaaaacagg aagaatcgga gttcttcaga agcctaggga 19260
gccggtaagt acctgtagat ggggcagctc tggggatctt agctagccgg agcaaagagc 19320
cgggacgcct agagaagacc aactacagct gctttggcgg tggggactgg gccagtgcgt 19380
ggaaagtaca tcactcggct ttcctttcgc tggagacatg cccttccatc ctgtcaaagc 19440
ccgagggaaa ggccaggttg cctgtggcat ctgctttttc aagcggaaac gctagggtgt 19500
ttcatgttga gtgctggatg gtggaagctt agtgctgggc attgggtgga atttgagcat 19560
ccaactttca tgctccaacc ccaggcattt cagcttcttt ctgtagagga agaagggtgc 19620
ctttggccca tgattaatag aagtgcagag gacagtaggc aacaggtgat aaagggttaa 19680
tgagcatggg gtgcagggtc ttctagagga ttccagctga ggacagagct tcttggttgg 19740
gtggtgctca agtgagactg ctcaagtgta tggacagcgc ctgctctggg cagatagcag 19800
gcaaagagct agtggtgggc agaaggtctt gcaagattag aaaggctggg cttcaagcag 19860
ttccctactt ctagattaaa cagttcccct cccttccttc tccaaagact gactcctctc 19920
tgggtctttt atcctcttgc ccccactcca tctctgtacg cccacctccc atgttccttt 19980
tctagatagt ctttttacttt tgaatgtaac ctttgggccc tgggaacttg atggggtaga 20040
ggatgcccac ctccccttct gcaactcttc ttctgaaata tgtatgtaag agcagtcgaa 20100
tgatcaaact agatccatcc catccttaag tgacatgact ttttcctagt attgagtgac 20160
ataactcaac aatcaatcaa cactgtgccc agcaccccca catcccccca cccaagaaat 20220
cacacttaca ccaggacttg ggggaaggca tactgatttt tccccctcaa tttcctttct 20280

ttctctagct gttttaaacc ttattattat tatttttta cccaaatttt ctaattcaaa 20340
atgtattctg tattctctag tgtggagcaa aaatacatct ttagccatgg atgtgttcat 20400
gaaaggactt tcaaaggcca aggagggagt tgtggctgct gctgagaaaa ccaagcaggg 20460
tgtggcagag gcagctggaa agacaaaaga gggagtcctc tatgtaggta ggtagtgaca 20520
ctgtgactaa tgaattgggg tggctggtgt gtggtgtctg attcgtgtgc atcacagctt 20580
ctcagaagag tgacagctgt gtggaggtga gagaatatga acctgcatat tagctctcag 20640
aaacaaacag ggacaatgtt ttctgtcctt agattcatta atcttgttat ttatgtaggt 20700
tttttatttg gttttctgtt tctgtgtatg aatacactga attttaaaaa ttggcaaccc 20760
atgaaaaata accaagaata tgcttatgaa tcaaagacat gtatggcagt aagcctggtg 20820
gcatttggga agtggaggcc caaggaccag gagttgatgg tcatcttcag ctacacagag 20880
aatttgatgc cagcctgaac tatgtgagaa cacacacaca cacacacaca cacacacaca 20940
cacactcaca ctctctctct ctctctctct ctctctctct ctctctctct cacacacaca 21000
cacactcaca cacacacaca atacacacac acacactctc tcttacacac acacatacac 21060
acatacacac atacacacac acacatacac acacacacac actcacacac acacacaaag 21120
aaataaagaa ataaaggaag gaaggaagga aggaagaaag aaagaaagaa agagaaagaa 21180
agaaagaaag aaagaaagaa agaaagaaag aaagaaagaa agaaagtgag ccacaagtac 21240
tcatgggact ttgatttctt tcatcatcac tataggtaat acctgctaag tttaataaat 21300
tataaagctt taaacaatag ttttgcataa ttttatttta caactgtgaa aatacaactc 21360
ctttgaccct caaatagaag aaagaaagca agtcttcttt ggtggatctc cttttaggga 21420
tcacttggtc agtgggaaca gcgggactta aggaacttca gaaatgtttg tttagttcac 21480
ctgtcagaga tcatacatgc tgaacagtaa gaggttgata tttagtgcca ttttctgcct 21540
gactgtacac attgaaagga aggccaacac tccctttctc tgtctttccc tgtgttaaat 21600
tggctgtaac tttacaaatc ccttctagta ctttcatgga aggaatagac acccatgcac 21660
acatgcttat ccccagcaga gacacaggtg cacatgggag cacagttgca gggttcatct 21720
acctctcttt cctcctgtga acactgtttc caccttctta ggagggcatc tctcttggtg 21780
gaagactcag ggtaaacatt caggctgaaa aggagcagaa caggtggcaa aagtgatgca 21840
gatgctaccc agagtaccaa tcgggggaag ccatgctgac cctccaaacg atcagtgagg 21900
aattgatact tgtaaacatt ttcatgaatg tgtcttttca ttgaagtttc tagcagatca 21960
cctttcctaa ttcttcacag aataatttta cattgaatta attctctttt tctacttaaa 22020
acatcctttc agaaagtctt gtaatgagta ttgtaagaga agggtgtcaa tgagctaatt 22080
ttagagtgtt tttttttaa tgaattgtga agtataatgt tttagataga attcagaata 22140
taaaagcagt aatttgtaga tttggggaaa aactcaattc ttccacaact acaggcttgt 22200
gactgatttt ttttttttt acttcagttg cttaagaaac atatctgtag atcactaatt 22260

taaagcaaat ttagaagttg ttgaatatta atttagtata ttactctttc tggataataa 22320
atggattttg tcaagcagaa cacttctttg tttttattgt taattttgag tttgggcaaa 22380
taaagtgatt atatttttca aagattaatt ttgttggtct ctgtgaggcc attatattga 22440
aagtgtaatt ttaatatgtc taatattatt aaaattatca atgtctgtta ttatatttaa 22500
aacatgttta attaatcaat tgcttattat gttctggaat ctaattaaaa gctgaacaca 22560
tgcatagagt ttgggatgaa gagtaatgtg tgaagataag aatgatagct cagatatttg 22620
tcaacttctg ttaatgttcc aacacatatt agaaaatctg tcatagataa tcagctgtac 22680
tgttggctat actgattatt gcttagataa tcaactgtgc tgttaaagta tgaaaacaac 22740
cataggcaaa aaacagtgtg actctgcctc tgtctttatt gactcagaga ctatagagaa 22800
atgaaaggaa tgtagactct ggacttgact tgatacagac agaaatttaa ttcaagccac 22860
atgatttctg cctttagcat ctgcaggagg taacttgata tctttgagtc tcctcccctt 22920
tttcacatac acatagttca taaaaatgca actgctttgt aaagttacta aagttatgta 22980
gttaaggtag taactgagtg cactttcata tttaggaaac ttgaatcttg tcagagaagt 23040
tgttcaatct atctgttact cagtcaacct aatttcttac tttttatcca agatatgaaa 23100
ctattattaa tacctaacct gaaggattag aaataatctg gactttggac atagctcccg 23160
tggcacagtg cttgtctgcc agcatgcagc cctgggttct attcccgtac cagaaaaaca 23220
aaagattaaa aataaaaggt tagaagtaat caaagaaaaa caatgtaaac ttcagcactt 23280
atggctgaaa aggcttggca gaagtctcat ctcatctcta ataacaaatg ccttggacaa 23340
ctgcctttca atgaattgaa gacctgccat actaatcagt gtgctgattg tctctgtgat 23400
atttgcacaa aaaattcaat taacatattt tagcttcata atcaacagtc tcaatggcgt 23460
gatgtataat tataaattga atttaaagtc aaaaagtttt cttcacttca tgttagtttt 23520
attaatacta taaagaaaat caccttcaag ttctgtttca ctgcctggtg aagagctgtg 23580
gtcacacatc taactcctaa gtctcacatg tgagacttaa ctacatgttg ctaagtagtc 23640
agcatataaa ccaatgatat gactcatttc tcacattcct cttaggtccg tatccttgta 23700
atattccaaa taaacaagac agggtggggt ggaaggcagg gtacatttct aggctcagag 23760
aagccattat tatattgttc cccagcttcc atatcttact tcttatttgc tacttgatga 23820
ctaatttttt tttgctatat cttatcagtt agatctcacc tgtaaactga agataaacta 23880
tcatttataa cttagctgat aattaggata acaaaggtga gaggtatggt ttgagataca 23940
gggccttcaa gactcatttg tctttcatta aagaggcatt ccatgatttt accaaacgtc 24000
aaattctctg ttactgctga ggcaaagaag acagacaaga gaccagccag tgagcattag 24060
ttttccttgg tcatgctttt tttttaattg ggtattttat gtatttacat tttaaacgtt 24120
atcccctatt ctattctaaa ccccttccct ggcttctatg agaatgctcc cctgccaccc 24180
atatactttc acctcacggc cctggcattc ccctacacta gcgaatccag ccttcacagg 24240
tccaagggct cttcttctat tgatgccaga caatgccatc ctctactaca tatgcagctg 24300

gagctatggg ttcctctatg tgtacttttt ggttggtggt ttatgggagc tctggagggt 24360
cttgttgatt gatattccta tggggtttca aaatggttgg cttccagcat ccgaatctgt 24420
attgatcagg ctctagccga gcctctcagg agacagctgt atcaggctcc tttcagcaag 24480
cagttcttgg tattagcagt agtgtctggg tttggtgtct gcaaataaaa tgaagccttt 24540
ccttcagtct ctgctccact ctttgtccct gtgtctcctc tagacaggag ctcttaaagc 24600
ttgttgtagt gaagatgata cagaagagtt gagttctctc acgcaagctg ttctactact 24660
tgtgcagggt gccctgccca ccaccatttc cagttgtgat gtgaatagca cctgtctcat 24720
aaagcacaac ttaaacacct gtgattgcag tgcataaatt aatagtaatt attcgaggta 24780
caaactttac tgctagcact tcaccctaaa aattatcgca aaaataatga aagcccaatg 24840
taattggtga ctacattaaa ctacttcttt cagaatttgt ccatgagctg ccactttcca 24900
tctgttacaa gatttgcaca aaaagcagca cctgtgggtg tgctgtcttt tgtaacctgc 24960
taataaatcc gtgtgatatt tttacagaca cacatctcag aaaggggaaa ctgaccagct 25020
gaggtgaagt cacatcaagg caataaagtg caaaatcctg ggagcaattt gtttatagaa 25080
aaataacagc tgaatattca gattgcagaa atgtaaattg aatatttaat aattttggaa 25140
atagcaattg gttcataccc gggttagtgt atatcaactt gaaagaaagt agagctagca 25200
tatgtggtct ctagtgtagt cctagatagt atgtacacac ttcagggtca ggaggtaaat 25260
gtacaagctt acactgagga ttgtgacata tcagaagcca ttgtctcaga ggaagtaatg 25320
ccttcttaac cccatgctaa aagaactatc agagtcagat cgcggcatga agagttgtgg 25380
tggtttgaat aggaatgcca cccagagtct catgaacctg gtaccagcca gtggtactgt 25440
ttgggaagga atatgcagtg tagccttggt agccgaggta tgtcacaggg agaggcagtg 25500
aaggtttaat agccacccat cattcccagt gtactcttgg tcccctgctt ttggatcaat 25560
atgcaagctc tccattgttc ctgctgccct tcccttccta ctccactgtg gattctaaca 25620
cacccaatgt tttaggacat gaaaaagata cccacaccgt aaaggcatat gcaatgagaa 25680
gaaggcaagc tttgttgaaa ctacttaata agcacattgt ttttgcaaaa attaaaaatt 25740
ctaaactaca aaatataaaa taaatattag ctttaacatt ttatcatttc ccaacatact 25800
tgtgtttaat aatttgactc atagcccccc caccatccac tgcttataca gtttccccat 25860
tcattgttag gttctgtaca ctgatcagct cagcttgtcc tcacagctct acagtccctt 25920
gcaaaatgag cagtgcctat gaaatgcatg cagacagcac ccatgcagaa cacatatccg 25980
ttcctgctaa caagtgtgcc tttctctctg cgctgcttct agtgcggtga tctttcctgt 26040
gctttcagct tcagcttctc cttcagaggc atttgtatgg gtaagaacaa gagtttgcac 26100
catgtctgta tcatgcattc aacagtactg agggctttac ttcaacgatt tccttttatt 26160
cttttgccaa gatcatgatg cagatttcgt taacctttag tgaagtgaag agttaaatct 26220
ggactctgta tcggggtggg ggtgggtggt tctttatttt caaaataaaa gttcctacat 26280

atgctttttt aattaatgag ggtttaattg actcctttct aaaatattat tttaaataaa 26340
atagacaaaa attctcttaa ggctatatgt atatatcttc aaaactattt actaaataat 26400
ttaacatact tttgtacatg tacttaggtt atcttattga tcatattatt cagcttgtag 26460
aaatgcacat ctgaatttta agcaattttg gaattagaaa ttacctcata gttagtgttt 26520
gtcaacttga caggaagtag agatatgtgg gaagaggaca taacatttga ggaaatgtct 26580
acctctgatt tacccatagt aatgtttgtg aggatatttt cctgattgac aactgatgga 26640
ggagcaccca gcccactgtg ggtggcacca cccctaggca ggtatttttg agtgttataa 26700
gaaagcaggc tgagcaagat atggagagca aaccagtgag cagcattttc ccgaggtctc 26760
cacatcagag cctgcctcca ggttcctgcc atgcttggag tttctacttt tggttccctc 26820
gataatgaac ttccaaactg gaagctgaga aatctccttt tccacacttt gtgtttggtc 26880
acagtgttca tcaccaaaca gaagactttg attggcaagt tagttatgta cagggaatgt 26940
ttactctaaa tgttggtatc tgtactttat gactgagcag ttggcttcta ggaagctatg 27000
tatatgatat agtttttgta ctagtttttt ttcctcttct tgttttctgt ccatgtagca 27060
agacattttt tttcttctca aatagtgcat ttttaaaatc cactatttta aagttttaaa 27120
attccccccc ccccacatgc tggcctaagt ctttttcagc ttatatgtcc tcatgtcctt 27180
tttatccttt gcattcttct gtgtctagat aagattattt tagttaatgt tcctctctcc 27240
atctctttag tcctttcttc cttggtttct tggtaatatt ggggatcaaa tttaggtcct 27300
taaacatcag aaaacagtgc tgcactaaga actatgtctt tatccctata ggatagcttt 27360
cacttaaaaa tgtgtatttt tatatgtatg tatatataat atgcatgtat attgtatata 27420
tatacagata tataaaaatt ttatgcatgc agataaaatt atcagtattg attgtacaaa 27480
gtgagaggcc tcattatgat gtgtgggtct ccccttcctt ggaggtaatt ggcaactggc 27540
ctaataggct gaggggagca gaggcggttc aggcttcaga ctaccataag tatgatggat 27600
tgacttctgg gatcagcttt agtgagacat aacaacttag acagtgctag ggatttctgg 27660
gtgggtgtag attattggct aggttcgagg tgctgaggat gtgtcattta aagaaagagg 27720
aattccagga attattggga gagaggttgt tgaatctgta atctggccat tgacaacatg 27780
attgtcttta taggtgaggg acatagaggc ctgatgccac agcaagtaga ctaagaatag 27840
ggagagagtg atcctaactc ctgcctgtct aaggatgaga tttgtcagca tcttgatccc 27900
gtctcactct tgctccaggc tagctctgct ggctgcacat tctcacaatg atcttcccac 27960
agatgcattt aatatacaag gttatagcca cccttctatt actagttttt tattattatt 28020
tgtagagata atgcttttta tatttttatt tgctttgtta ttcctgcgct ttcatttttg 28080
ttgtgtatac tcattgttca tggttccatt ccataaggac atttttatat aagtatatag 28140
aacacgattt ttcacaattc atgaatgtat tttgatcata actcctctcc tttattcttt 28200
ctcccccttg ctcttcctct ccacttcttt agtaaagccc agctgctttt gcgtactttt 28260
tatcactcta tgcatatctg ggagaaaaaa tgatgctatg tttttctctg tgagctgggt 28320

catttcattg aacatgatga tctgactttt tccctacaca tatcataatt tccttctttt 28380
ttatttccga ctacaagtca attatgaaac ccagtgtgtg gagaattctt aaaaagtaag 28440
aaataaaatt tccagccatg ccacttctgt gcaaccacca gagccaccat acaagaatga 28500
tgtactgcat accatgcata tttgactatt caaccataga gtgttatgga agcaacccag 28560
atactcacca gtggatgact ggaagaagag actctggtat aaatcaaaac cagagttttt 28620
caaatgaacc ttaaatctcc aaactattta atcaaatggt ggtcattata ctgaaatttt 28680
aagcattaga aagattattt ttaaaatgat taacaaactt acttttaata atatgtgcaa 28740
tagctatttc tttgtttagt aatggctcaa ggcataggtg aaattcttat cttacataca 28800
gtcctagttt gaaagtaaca tgctgttact taataattat gcaaatcact taattatgat 28860
ttttagtttc cttatgtatg aaatgggtat tgaatggctg catcagagat gatgtgaggt 28920
caatctgtac caggggttgg gcagacgctg atatcttctt tcctctccct tttttgttgt 28980
ggattgtgca gtctctgctc tgttgtgctt ttacagcatt ctcaggtctg cacagagaat 29040
cttactatgc ctgtgttatc ttccctttcc ttctctctgt aaattgatga agaaagcatc 29100
aagcaagggt tatgtaaaga gtcgttatgt tttgtgcatt gtgttttatg ttttatctga 29160
taaataaagg cacaaaactt ttaccagtgt tgcctctggt gcagttccca tccatgttca 29220
cattgtgtgg tcaagctaca catatctgtt gcctctaaca tatgtcagat ctttatgata 29280
ttaaccactg aagcttgtag ccttttgaga tccacagtgc ccagttgctg tctattatct 29340
cccaggtgga acagcacagg agcttcatac tgctgactaa ctcaactggc tacccactaa 29400
accctctcca ggcttccctc ctgaactcaa cctggatagg ctggtggtag ctttcctctg 29460
gggtggtggc cagatccccc ccactttagt gatttctgag tgtgattggt ggttgttagt 29520
cttctgaagt tatctttgta cattcccttc tgaatattga gaatttttaa ttggctgctg 29580
taaattgaag gacagtttaa tatttatgcg ttcaatttct ttgttcttta ggttccaaaa 29640
ctaaggaagg agtggttcat ggagtgacaa caggtaagct ctgttgtctt ttatccaggg 29700
gtgatatgcc gaatgccttc taggctaaat taacttgatg cttatacttc aagatataag 29760
tgtaagagcc attgtctaca gaggaacatg ggtcaattta ttttttttatg tatctaattt 29820
ttaattttgg tatggtgaga tggagtttag ctacacaagc cagaacagct tctgcttcaa 29880
tcttctaaga actgggagta caggtatcac caatggacct tgcatattgg ctttgtttaa 29940
agtttaatgt ttatgcaatg aaatattttt aagtagacaa atatggatta aaaatgtata 30000
gcccaatatt ctaatggcta agaatgacgg atttagattt gtcaatggta tttaattcta 30060
ataatttggt atttgggtag taggctaaat aaataaaata taatgatgct attattaatt 30120
taaatatttg atgtaaacat ttctttagta tttagtattt ataccatcag ttatactgat 30180
tagatatttc ctctgtgatt aacaatcctt tttagaaaat atacttagta gtgtgttatt 30240
tttaaaaagc tgtatatttt tattttattt gtatccactt gtcatatctt caaaaagatt 30300

ttcaataaga ctaaaataat aaatattgaa ctaatatgac taaaattata atgatcaaaa 30360
atgacaaaga caatgaattt actgtgggag gaaaagcaac aggagaacaa taagaaggga 30420
aaaaccaaag agaaaatgat aaacataacc aagctgccaa agcttggtgg tagctaaagt 30480
tccttatgtc catttgccat gcatcagact accttaagtg ggaaaagacc tgtcaggaat 30540
gaacttgata tgatcaggaa ccttggccat gacaccacat aacaaagcaa atgcactgca 30600
taagatagca tcacacagtg gcaacctgtg tcttccagtg gctctttccc aagaatcatt 30660
tgctggccat ggaggaaaag aactcattct ttttagcaca ctgataaaga ataatgatgc 30720
taaagcaaca ctgaagccca ggaacaagac ccttttggaa gttcacaatg gtgaggactt 30780
ctttcagttg ctgtcccaca aaaagtgcag atagcaagag agtaagcaga ctgattggtt 30840
cctggaagct gaaacttagg cttgactctc ataagacaga taagacaggt acagagtgct 30900
ggaggcccac atccagagcc acgatgttcc agcttccata gttgagggag aaggaactgg 30960
tgagattcag agtctattgt ggatgcattg ttctctattg acaactttgg aaatttttaa 31020
tattccctga atgacaagga tataaagcat gagtttttat actgtgtgga aaagagagtg 31080
ggggctggag gagcaagaga ggtcagaggg gtgtggaaag tttctgcagt aggcaacatt 31140
ttagaaatat tttctagaaa ataattgtca gcaagcttgc atttccatag ttttataatg 31200
ttgacaattt acatgccttt tatatatcct tttagtctat taaggaactt gaaatgctcc 31260
acagtaggta aagacacatt atataatata acccaggatt cttgaatatt tactactgaa 31320
agttcccttc catatttaac tgtatcaaat ctagtgttaa caaaacacta taagagacac 31380
gtttttgttt gtttgttttt tgttttgttt ttgtttttgc ttttgggac agggtttctc 31440
tgtatagccc tggctgtcct ggaactcact ttgtagacca ggttggcctc aagctcagaa 31500
atctgtcttt gcctcccaag tgttgggatt aaaggcatgc acctcccggc tataagagac 31560
actgttaagc agcaaggaca cagtggtgtg gttgtggcac cttgtaccac cattctacca 31620
gtttagaaac ctgacagtaa tatataatat caaatatact gtcacaatta gtcagactat 31680
gaagaaatgc attgtcaaga aaggccacag taagtgctat ctctccccat cacatataaa 31740
taaattgcgt aatttattga gtagtatttg tgctgctcaa aagttaagaa tttaggaaca 31800
ttttgaattc tggactttca aagaagtgcc actacatatg tttgaaatgt tacttagaag 31860
ggataataga agtgactttg ggaagtgagg tcacagagct agctggcttt gatactgaaa 31920
ttgtatagca atgctcagac ttgacactgc acctggctgc aatgttttgt gtccactcac 31980
ctcaatgcaa accaaatcca attcacttgt tgctatgtgt tataattaaa ctcccaatat 32040
tttctaattt ctgcactaaa ttcatattca gtgtttggct gaaacatgtc tcttctacct 32100
tgctgtcttg tttcttcaga ctcctgttac ctatgatata tgtgtctata gaagttgaca 32160
gctgctagaa gtggaattat taaagtctct gtcacaccat catcttttac tctgttgtca 32220
ctcttgattt tcttaagtgg ctgagaagac caaagagcaa gtgacaaatg ttggaggagc 32280
agtggtgact ggtgtgacag cagtcgctca gaagacagtg gagggagctg ggaatatagc 32340

tgctgccact ggctttgtca agaaggacca gatgggcaag gtatggctgc ctgttttatg 32400
ctcagtaata accctggaca ccatgtcctt gcatgcatca tagagcatgc acatgatgca 32460
cactgtgggg aacactgcct ttaaagggct cttattttga tgcactgatg tccttgggaa 32520
atgtcatgca cacaataacc ctgattgttt tagtttctgg aagaaagata tagaactaaa 32580
aaaacgtagt aaacactaag agaccagtga catttcagaa agaataaccg ctttcatgta 32640
aatggtaggt ctggaattcc tctttatagc aatagcaagc attttcatga gtaattttta 32700
cactgaactt agccaaaagg ttgagaagca atcatgagta atttctaaat tttcagaaag 32760
aagatctttc atttgattta tttggaatga catcatctct tattaaatga catatttgca 32820
tatcatgtaa caactcattt ccaaatatga ttttgccaac tgggagactt aaagttcata 32880
ccaaacacag atcatggttt catatggtga ttcttacatt ttcagaattt taaatttgct 32940
tctggataaa tatgaggctg cagtgacata ttctaggtat aattttccta tcaaatgtta 33000
aaggaacaga aaatgaggac ccctggaaga tgacgtttca caaacctcat gatcttacag 33060
taggatgagt tttgcatttt tatgtcacat gtacttttat acttttttg agagattcca 33120
gcttcccccc aaaaaagccc atctcagttt ctcttgctct gggtctttgt taaatgacat 33180
cttccttgca atgcctaatt tatttaaagt tggaaccatt ctcacccatg aaaaccataa 33240
cctttctatt ctaatttctt cttgtttgat aaagtgtcat tgcatttaaa ataaattaaa 33300
taatctactt gttttgagta tgttattttt ctttgtctat gtaggcacta tcataatgta 33360
aatatttatt ttgcttgttg atacttcatg tgtctaggca agttcctaac tacaaattca 33420
gtaatgaata agagcttatt aaggatcgaa agaatggata aatgacaatt ttctaaggat 33480
taataatcat atacatggtg taaaaccttt ggctattgac tgatccaaaa gttgtaatca 33540
aatgggttct gaagtagaca tcctgaaaca caaaagaaag atactttcac ctgtgggcag 33600
actactatgg gtcttctcta tttcactcat cctaggtggc agaacaaacc atggatagtg 33660
gattgggaaa ctgaggatgt acatttcata gacagttcta ttgttaggga aattaaatgt 33720
aacccaagat aatctaggaa gtgttcagag aagtgctcag ctgatgtcaa catggactga 33780
tcaattcagc tctgctctga gtgcaatatg cttttgtggt aacgtcattt ttgtggtaat 33840
aactatatca atgcctattt tccatttgac attgtaatca tatgtttatc tttatcatac 33900
ttaaaatttt aagagacttc agattagtat caaggagtct agaattacag gttctttgac 33960
aatctagtga aaacaaggga acctcttgtc agaaaaacac atgatcacac atatacaaca 34020
aagcaccaaa ggaaggccat caacagaccc tcaatttaaa accaactcct gatgaggaat 34080
gtggaatttg tagaggggaa gtgagtgtca agttcctgca gtgactggag ttacccgatg 34140
accctcacac acatctatct gagttggcaa gatgtgaagt gttttaataa accgtttgtg 34200
acttataatg catgttttaa gtgcagacaa agtgacatca cttgcccagc tgtgtcacca 34260
atacatacct tcctttgtct actgattgaa ttgtgcaata ctagagttag tggaaaacct 34320

tagtgctttg gaatgtataa aggctgggaa gcatgtctca ttccatttcc cactttgtct 34380
gcacctaaaa catgcattat aagtcacaaa cggtttatta aaacacttca catcttgcca 34440
actcagactt attttctacc ttttataata acaatccata ttttagtatt ctaaagcgga 34500
aatctaccag tgttacaaaa tgaaacattt gcagatattt ctcctagagg aattaactct 34560
gggctcctaa aattttctaa tataaaaatg aaaccataaa cagaaattgc agtaaaaaaa 34620
attgggataa aaccctgttg gtttggggtt agatggttga tcttcatagt atactggtca 34680
tttggtagct atgaaagctt gtgctaagcg cccaagacct atccttatgt aatggggagc 34740
tctgagtttt gctaccttac caaaaagctg gtaaagccca atttagaaat gaattctgaa 34800
tatctacaat aactcaagga atacacaaat aaatgccagt aattgtggcc atattacttg 34860
attcaaaaca tatccacagt ttaaataaaa ttggatttat ttctaaagaa atttgaaata 34920
ttttatttca tctttcagat tctaattaaa attatcttgg tgaaaagaaa caagcatata 34980
tttgttaaat tttttaattg attgttagtg accccaattg gcccatttgt aacaaataat 35040
gattgtgtct cgtgtgtgag aaacttggaa gaacagggat ttgaccaata gctctcatat 35100
actaataaaa ggctaataga agggattagt cacactatct tggtggttgg gtctcaagga 35160
ctagcttttt tttttttgt aaagttttat tcatttattt tatgtatatg agtacagcat 35220
tgctttcttc agacacacca gaagagggcg tcagacccca ttatagatgg ttgtgagcca 35280
ccatgtggtt gctcagaatt gaacgcagga tctctggaag agcagtcagt gcccttaact 35340
gctgagccat ctctccagtc ctgttcccag ctttaataag acaattaatt atatttatgt 35400
tatttatctt tatctatttt tctgaataac taactatgtc tgcctagcac tgagaaggag 35460
ttcaatgatg attaattata tctatctttt attatttatt ttaatttaaa ataacaataa 35520
aatttaaaat gattactcta caaaaaagta gaatatgtca taacacatgt taacagtaga 35580
atgttatatt aagtatacat acaaccacaa actgttatag caatcaaggt aattaacata 35640
atcaatgact tcaatgactg tggtggcagt caggtattat taactgcaag aactgtgtca 35700
catgttaagt ttcaagggca ttccctccct cccagttcct taccctgat aacttatgag 35760
caacatcttg ccatttcttc caccttctag cccctggtag ccacaaatct aacctgtttc 35820
tatggacttg atgttttctt agaatatatt ctacatagat gagagatacc aaagtatata 35880
gctttgttcc tctggtttac tttgcattgt ataatgtcct caaggcttat ccatgctgtg 35940
gcaaatgtaa ggatttccct gtctgtatag acctttttgaa ggcttaataa tattgcattt 36000
gtacacatat gcacacatct ttacccattt agctgctaat tactctttgg catgtttgca 36060
catcttaact attctgcggg tttctttctt tatatctacc aattcgagtt tcagactata 36120
tggtagctgt gattttagtg tttgaggact tgcactcagt cttagtagtg actcagttat 36180
atttttagca gaggtgctaa agcttccctg tcctctacac cctcaattct tgccgtgggt 36240
tgtccttttg atgaccagtc taatggcgat aggtgataat agatcattgt ggctttgaat 36300
tgtttttact tacgggttag tgaagaattg ttttcataca gcccttggct atttgtatgt 36360

cttctgtgat aagtgtcttt ccagccaatt agttcagtgt gtgtgcatgt gtgtgtgtgt 36420
tgtttttggt gtgtttatat gtgatatgtg tctgttgtgt gtctgtggta tgtagagtat 36480
atgtgtatgt gcattttatg tgtagtttgc atgtgtatat gtatgtaaca tgtgcatgtg 36540
agtttgtgtg tgttatgcaa attcacttgt ctgaacaggc atgtatagag tccatagatt 36600
gacattggga tatttttca gtcatttgtt tcaggatcca tttcctagtg ttgaatttac 36660
aggtgtgcac tgtcacgtgg cttttcacgt ggatcttggg gatccaaatc aaggacatgt 36720
gtttacacag caagcatgtt actcagagag ccaactctaa agcttctttc gtcgattttt 36780
ttctcttaac caaaatagat ttttttatac agaatattct gaatatagtt tccctcctcc 36840
aactcctccc agttctcccc catctcccct ctcatttgta tccataccct ttctgtgtct 36900
cttagaaaac aaacaggtat ctaagggata ataataaaat tagataaaac gaaaacaaac 36960
agaagaaaag cagtgaaaga aaaagcacaa agaacacaaa tgaatgcaga gacatacgtt 37020
tacacacaca ggaatcccat attaaccaca agaatggaag cggtgataca tgcataaaga 37080
cctgtaagtt aaatacagtg ctctgacaaa atattagaag agaaagaacc tccaaagatg 37140
ccactgacgt aattttctct ttggcatcta ctgctgggca tgcagcccat ggcttgttac 37200
tccagtgagt cttgcttgga gaaaccaagt ttttatttgc aagtggttat ggattggagc 37260
aagcttctag tgagggctga aggcatgtgt ccacttctcc tttcatctct aggactccat 37320
ctggtgcagc tgtgcaggct ctgtgcatgc tgcctcaggc tgtgtgagtt cctctgtggc 37380
catgtttaga ggccttgttt ccctggtgtc ttccattccc tttggctctg atactatttt 37440
tcacttactt tctttttgtt gagcactgaa caaatacata gtttgcaaat tgtttctcct 37500
ctttacaggt tactcctgta tcttgatagt agtctaattt acagtggaga agctgtcagt 37560
ctgatgcagc ttctatgtat tcccactcta gccagtagat tttgagtttt accaccaccc 37620
ccaaatattg ttcagaccaa tgttgataca ttttcctttg cactttatta taatagtttt 37680
caagtgttga atgttgtgtt tgagcttttg gctgttcagt tttcccagca atgtctattg 37740
atgatgtcct agagctgctt tccccattgt gtgattttga cacttttgac atagcttgcc 37800
tgctgttgag tctgtgggtc tacagttctc tgttccagtg cacacattat gccagtacaa 37860
tgctgttttg gttactcaag tcttgttacg gatttttaaa tctggcattc tgatgcctcc 37920
aggttgaatc tgaaattttg atattattgc ttgtttctta aggtggcttg gatatttaaa 37980
gtcctctgat ttgactcttg tgggtttagg gtttttgact atgtctgtaa aatgtttcat 38040
tttagtttgg ggaagaggca catcccatct ctaagtcatt ttggcgacgt tggtaattct 38100
tcagatccat gaatacaggt tttctttcca tttacctctg tctcactttt taaaaaatca 38160
atgttttata atttttagtt atttaggctt taaaacctac gttcgattta tttctatgta 38220
ctttttattg acactcttaa tgctcttgac actatttaag tggaattact ggtttctttc 38280
ttagttagat atctgtgtaa aactgattct taattttgcc tattgacttc atatcttgaa 38340

actactttat ttattaattc tatttggtgt aatatttaga ttctttacat gtacatatca 38400

attttaccat ataaaacata tgtatatatt attactgtac tataaacaat caggcataaa 38460

cacttaatga tataaaacat ggaagatttt agaagtgact cagtacttgg tagatctgat 38520

ctacaatgtg ctatgtgtaa aagcttatca gttgttacaa actcattcag ttgattgtta 38580

cagtggaaac tgactaatat gagttgacag aaatataagc tagtagtggt tttatgtaca 38640

gcatataaaa ctagtcccca ttttcacaga gagaacgatc tgcttgtacc aagaatgttg 38700

aacttaggaa gttactggcc tccatgctgt tgagtaatgg cacagtgttt acaatgcaaa 38760

gctagtcact gagcatctgt ctgggacatc tggcctgtct gtctgcttaa tggtgttctg 38820

tttgggccta ctatttaaac caaccattgc taaataaatg gacatctttt tagttccatc 38880

tagagtgctc tgaaaagttg tagctaaata tttaaaaaat gttttgaaaa tgagtgaagg 38940

actgagtcaa ttgtggagtg tgctgccttg catatatgac attgctctgc ctcttatcct 39000

gtgcttttag gtatcaatct attcacatga taactcatag ttttcacaca ggtaagcttg 39060

aagcaccaaa gatcaggagt gttaattatt tttctccaga gtcagaagaa agtgctgaag 39120

cattgataat cgtgaaacat tcatcattag attataaata atttttaaa tttatctgtc 39180

tggtcaactt tatttttttt tggattgcat tttattttat ttagttattt ttttacactc 39240

cagattttat tccccccacc ctgtccaccc tccgactgtt ccatatccca tacctctact 39300

ttacccactt gtcttcacaa ggatgtcccc cgccctcacc caaccagacc tctaaattcc 39360

ctgaataaaa ataatgtttg aaaaccttaa tttcaagaca gaataaaaca catgcagtct 39420

ataatcattt cttgattgat aagaagagag ctaaccaaat gcagaaagaa cagtgtcatg 39480

tttggcatgg tctttaatga tcatgacatt cttctccctg cttcctgttg gcacgattga 39540

tgagcgcagt gttgtgcaca ttaagtccta aacactgaaa ctgactttga tcagatgata 39600

tatgctgcct ctaggtgagt gatttgatca caatctcaca aagaatccac aggtcatagg 39660

caacattttg catttctcta aggaaataca tatattacag gtggaatcaa aggtgaggat 39720

tagtgaaaca ttttccttta ttttaagatg ttttccttca gtgtttaata atgaccaatg 39780

caataagttg tgtgaaagca ttagaactcc aagttctgtc tgttcagtcg aagatagtca 39840

ggacagtatt caaacctaaa tgaaagcttt gtgatacagt gagtgatctg ctctgttgtg 39900

gtagtggagt ctgtgagcag cattggaatc ttaaagtatg ataatacccc tcaaaggaat 39960

aaacacaatg ggcttacttg atctgtttca aaatcagtga tgttccatat catcagtagc 40020

atttttgcaa tgtgatccat ctaagatagt atttttcact aaaaggagaa catgctaatt 40080

gtgtacatta tccttgctta gaaacaacag gggaatgcca gggccaagaa gtgggagtag 40140

gtgggtgggg gagcatgtgg gggacttttg ggatagcatt ggaaatgtaa atgaaataaa 40200

tacccaatta aaaaaaaaga aacacacatg ttgagtggtt gtattgtaca taaatgtttc 40260

actgctctta tatgtatgga gaggaattgt gaatcttagt gatttctaat cagggaaatt 40320

tctaaaagga aaagaattct gtaattgtaa ggaaaaatag ccttactgga cttttgtttg 40380

ttgtaattcc aaagcactga gtcatttgct aatatgtgat tggtatccag atggatcagc 40440
aagaaatgca tgaatcatga atgcatgttc cctgtgttat gtatgtagac cactgagggc 40500
aacagacatt atccctagtg aaaaacagtg agtatagtat gtatattccc taagcttata 40560
tctattatag aaagagttaa gtggcttttg ttagaaatga aagagaattt gtattattcg 40620
aaataaatac taactctgat gagtgttaac ctgggttttt gtgaatagca aatgaagtag 40680
cttcagacaa ataataacca taatatttca cctgcttgac acaagaacac aaacttttc 40740
cactcaagtt ctatgttcag tggtttataa tctgtcagca tgaaaccttc agcaacatag 40800
acatgaataa aaatgtttaa aggccagact atggatgatg ctctttacaa aagaaattgt 40860
aaggccagca tggtagtatg actttaagca taccagtgga caaatacaag ctatactatg 40920
caaatctgtt tattttctca caagtgctgg cagaggttaa tattctaaca agtgctaata 40980
cagtttcatg aattgatttt taaatttttt attggttatt ttatttattt acatttcaca 41040
tgttatcccc cttcctggtt tccctgcata aaacctctac tccatttcct ttccccatta 41100
cttatatgag ggtgtccccc ccccactccc accttactcc actatcattc tcctacactg 41160
gggcattgat ccttctcagg accaagggcc tcccctacca ttgatgccag acatggccat 41220
cctctgctac atatgaagct ggagccaagg gtccctccat gtgtactctt ggattggttg 41280
tttaatcctt ggaaactctg ggggatctgg ttggtggatt tgttgttcta attggtctta 41340
gttgtataca tgtgaacatt tattgctact gtcctttcac ataaaaccat tgtataatat 41400
tttatagggt ttcatttgag ctgctactat tatgtttaag atgatttcaa acttacatga 41460
ttttatggaa tttatttatt aaagggatta aaaatgatac atatgcgcgc gcgcacacac 41520
acacacacac ataccacatt tctacaatcg aacaagttaa catgcctgct atctcacaga 41580
gtacttctct ttgtttttta gtaacagaag ctaaaagtta ctcttttgga aaattgcttg 41640
catacactct atattaggta ttgtctttac attcctgagc tcgccagact tgctcacaca 41700
gttgactgta ttctttttaa tatctttgca catctaactt gtatttttac tttgtaatga 41760
aatggcaaac tcttcatatg gaggcagaat ctgattataa tgtgcttatg tgacagtcac 41820
tagtcttatc ccaaattcaa agagtaagaa ataatttgat tagttccttt tttggatgta 41880
ggctttgact agaaacatag cttgtattgc tacttatcaa aataaaatga cagaaaatgt 41940
cctatagttt tccaaatatt cacaatacac aacaattcag gacataagtc aattactgat 42000
atttccctcg acaatttcag gaataggaat aaataagacc agttgtgttt gcattgggaa 42060
tatatgatta tgaaagtggg aattagatgc tatcatgaat ctgattattc tattaggtga 42120
aaatgaatta tcaattccta tataaggtaa ttgctccata agaaacttta ttaaaatttc 42180
taattacact ttaattttta ggtatacttt aagaatccac cctactccct ggtgtagtgg 42240
aattattaaa catatttgta atattttcat ggtagtattt aatttccttt agagctataa 42300
tacatagtaa aacaaacagt gtagtctgaa atgagtgaat agataatgat gaaataagtg 42360

aaaaatgcga aaaattatgt acatttcaat ttccttttta aaaaaatttt attaggtatt 42420

ttcctcattt acatttccaa tgttatccca aaagtccccc atacccaccc ccctactccc 42480

ctacccaccc actccccctt tttggccctg gcatttccct gtactgaggc atataaagtt 42540

tgcaagacca atgggcctct ctttccaatg atggctgact aggccatctt ctgatacata 42600

tgcagctaga gacaagagct ctggggtact gattagttca taatgttgtt ccacctatag 42660

ggttgcagtt ccctttagct ccttggttac tttctctagc tcctccttcc tttctgcctc 42720

atctttcatt cgtattttct tattcaaaca ataggactaa tttgtttgga actcagttca 42780

acaaatgaat acagttgcag gtctgtgtat gcaaggagta aaatgaaatt tacattttaa 42840

ctacacttgt gaggggatgt gtttgaaaat tcacatctct atttgattat tgggtgtcca 42900

cacacacaaa tgagaaacaa tttaaatatg ttatatgatt tcctgtcatg caaccttatg 42960

gagtgcgtac tcagcttagc ttggacactt taagctttgt tcagtaattg tatgttatct 43020

gataagtctc tgggggtagg catgtgcttc ctacttatgc tacctagctt ggaattaatc 43080

tatctgttat acaaagtcta aaatttacta gaatatttca tctttaatct aattttataa 43140

caaatgtaag gcagatacct ttcaaaatat ctctgctcaa actaacagaa ttgcttatag 43200

tagcaatcat ctgtccatgg aggacagcca ctgtaagatt gacagagagg tagttcttac 43260

atgttctgtt agagctactt catacctgct actcaatcca ctttgatagc ctgatcttta 43320

tccccagggt ctggtttata tgccctattt gctcaagcat atagaaagtg tggctgggta 43380

agagggcagc tctgtacttc atggagtgtg gcattatctc tttcaccatg ctgtatgagg 43440

tcaccacact gctttgagca ctgacatttt tatccatgaa atagaattgc tgaatgaaat 43500

gagctcaaaa tgttttgtat ctcgattcag tggcttgaaa tttaggacag ttgtttttca 43560

attatgcact gccagacccc tggcaactca tttaaccttt ctgaagaagc gtttatcctc 43620

tgtaattggc cagccaactg cagagttgga atgagaagga aatgtagcag caaaggcaaa 43680

caatcaaatg gactgtggca taattgtgat atttttctat aaagaatctg atgtttctat 43740

ttatatcttt ggtttagaca tgtgattatt gagatgactt ttttttttt tggtgtggtt 43800

tggctttatt aagtggttta acaccaaaag gaatacactt gagagagggg atctctttat 43860

tgggcttaat aaattgagtc acattctttg tcttagtttt ttttttcca tgttgatctg 43920

attaaaatcc tctgacttaa gcaacttgaa gtagaacagt tttctttcac acacagatca 43980

tggatacagt acatcatggc agggaagcag aggcagcaga aacatgaagc gtcaagtcac 44040

ttacaaaaaa aaaaaaccta gtcaagtaca gagagtgacg attgctagca attcagtcat 44100

ggccttttt atatataatt caagatccta gtctaggaca tggtgttact cacagtggac 44160

tggttttccc aattcagtta tctaatcaac ataacctctc acaggcattc ccagaggcta 44220

atctcctagg tgatcctaga ttccatcaaa tttacaattg aagttagcaa taacacctct 44280

gttacattga attaaatttc tcaaaaccaa ttttattaaa ggttttatta aatgttatct 44340

tcatgtttta attagaaagc atcctgttca aaggattttg agaacactgg tataaacaaa 44400

gttttaaaat ttatctttta aattgaaaat gccaagtact tagcattata ttgcaagggc 44460
ataattatct ttcttagtgt ctcttcacac cagatgcata gagaataatt ctaagtactc 44520
atggagcaca tatacaagat ggcctgagta atgaccgttc tcactctgtt ttccttgtct 44580
tagtaatagt ctttttagat cccagataaa aggacactca gaacaagtga atgatctctc 44640
agcatttcat atcacaatct atttttggga gacacttttt aaaacattct tgaaagaagg 44700
acaaagacat aattcctgtg ttccatgtaa ggttttccat caaatcatgg aaaagattct 44760
gatagcctag atgatgagag tccagctaga ccagctatga aattctcctt gctctcttct 44820
ctctttgtgg tgagccagcc tacacttcct ttcaacacct aatttggacc cagataacct 44880
aggaatctgc cattgcagtg ttgaatctca tgaactgagg ttagtgtggg aagggcacaa 44940
tgctctctgc tgatgctcac atgttgagca tgtctgtgtc acaggttaaa aatgcagtga 45000
tagaagcatc cctgagtaca cacggtacac tggcggaaaa gcactgcaag tatgcctctc 45060
cactcagtgt attttgtgtc taagagttta acagctctag atttacatat aaggttattt 45120
atcaaagcat tggtaatgat acatttctta aatgctggaa acttggcaat agccactagg 45180
ctaaatacat gatggcttat cccctgtaat aattatttca acagaaaggt acagaagagc 45240
aatgggtgac ataataggtt gttcttgctg cattaagtga aaatatgagg ttatagaaca 45300
tattaaagtt tgtaaacact tttgttatta aaaacaaaca tgtcatgtga tgtctgtgtg 45360
tatttctaag cagtcttttc atttaattac aattagaaat taaaggtaca acattttatt 45420
ttacttgttt gtccaaatcc caactttaat tgatttataa aataatttta cctatgtagg 45480
acattaatgc agttattaat atgactgtga ccattgctgt ttattcattt acttagccac 45540
acatatatgt gttggcctac ctaattcata ctatgtgttc tactttgcac caagtattat 45600
aactgtaggg atgtagaagg ttgatttcca ggacccagtt cattgacatc aatcatcttg 45660
tctcctccta gtatgaaata agacttgttt tgttttcttt gttttgtttt gttttgtttt 45720
ttcgaagcag ggtttctctg tgtagccctg gctgtcctgg aactcactct gtagaccagg 45780
ctggcctcaa actcagcaat ccacctgcct ctgccttcca agtgttggga ttaaagatgt 45840
gtgccaccac tgcctggcga aatcagattt cttttgtgaa gttctgaagc ttttaatcat 45900
taaaaattcc aacctggaat agttctttta tatattatta ttattgataa taattatcaa 45960
atcaatatga aataccattt cagcaattct ctttcttgtt ggcttatgat aattgcatgg 46020
cttatccaaa taccagaaca cacttgaaca aaaaatttct aagagcaaag aattgtatta 46080
cctgagtggt taatttaatg gctcatgtat atttgacaag aatttctgat cttctgagcc 46140
ctgataatta actggctttg ctgattctta tctttggact ctgagagaga gctatcctca 46200
tagtcagtat atgctagggt aacaaaacac atgcaattga gtaattcttg aaaaacagaa 46260
tttacttatc acattgtaaa gctgggaact cagagatcta gacgagtttt gtgtcctgga 46320
gaatctcatc tttgttctga gatgacatct tgttactgtg tcctggagga gagcattttc 46380

aaggtgaata gaactgaagg ggtaaaactg tccccttgta cagcacaaac cccacatggt 46440
accattacct gtaaagagcc ctacctcaca attgggacat tagtgacgac atttcaagta 46500
atgggttttg gggatattca ggtcataata gctattatct ttattttcat gtaccattag 46560
aatgttagct tcttcttttt attaatatca ttcacagtag ggagaaatcc ctgtattaaa 46620
taccattccc tgtgtgcttg ttatccactt tggtaagaca cagaaagcca caaaagcaca 46680
ctctggaact ttgctttcgt catttcactc ccagtagtta gacacatcca tagtgtatgg 46740
gtttatttta caactgaaca ggaatctcac atgtcatgtg ggagtttttt taactataca 46800
tgcttgtatt tgaaagcaac atttaactgt gcattttcct ttggaaataa caccttccaa 46860
aacaattttc cccagctcaa atcgaaacat acacaatgtt tcctgtagta attagaatat 46920
aagcaagaaa atgaaactct gaggtaggca cagaaaaggt ttcatgttcc ttctgccttt 46980
attgccttta actagtcata caggatgcca gtaaaaaaaa aaaagtaaat tccttgaaaa 47040
ggaatacttt agtttactta atgacaagga tgagagagac agagacagaa agagaacaca 47100
tatacacaca actctctagc tctctctctc tctctctccc tctctctctc tctctctctc 47160
tctcacacac acacacacac acacacacac acacacacac acacactcag aggatgtgta 47220
ttaaggacta caaatgagat tgtgctgctg tgatgaatgg gacagtgtga ttttatcact 47280
ggactctgca gttcagtgga accctgtagg tcctgctgaa accctaggct gcttaaattc 47340
ttcagcaatg atactttcat tgtacaaaga gacatgtcaa aacacatttg cttttgtgat 47400
tctgagtatt cacttctgaa attaatcaat gttccacaag gaaaactgtg atttccttta 47460
tttatagctt gtaataatct agctagatat ttctcatttg gaggcatatc ttcaatttta 47520
acaaatcatt gtattacaaa agcatattca aaattcccaa gaaatttacc ctactgcact 47580
gtttgttctg gttgaaaaca ctgtaggtag gtgtcttagt cagtgttcta ttactgtgaa 47640
gagtcattat gaccatggca agtgttataa tgaaactctt aaaactgggg cttacttaca 47700
gattcagagg cttagtccag tgtcgttatg gcagggtcca tggcagcatg cagatagcca 47760
tggtgatgga aaatagctga gagttctgta tccaggtctg cagccagtag gaagagagaa 47820
agccactgga cctcgcttgg gttactaaaa cttcaaagct ctctactagt aacacttcct 47880
ccaataatgc cacacctcct aattctgtta agtagtgtca cttcctgatg agtaaatatt 47940
caaatataaa tatctataga gctattctta ttcaaaacat agttagcaat ttctctttgg 48000
tgggagagaa tcaactgata cgctatagca caaccatgtt caatgctgtt acctgtatgt 48060
ccaaggcata ttttgtgtgc acttattcct tcattcaaaa cacacctgtg gtatctggag 48120
gccagtgaga attatgtgag caagatgttt gagagacaca gtctttcacg tctgtacttg 48180
cttgaccctc atctaagtga cgttgttaga gaagtccaaa gctggcgttg tagcattctg 48240
ctgccacagg tcatcatcca caccttatcc tactctattg ggataattac ttggaattaa 48300
aaccaatcta atttgtaggg gaattggtta tgcaaataat cagcttagat ttttctggat 48360
ttattcacag tatttaatgt gtaattattt ctgccctcac ttttacatgt tctttaccca 48420

gcattttaac caaacctaag acaggctgca tgtgcacatg ggcaggtttt ttttgtgttt 48480
tgtttttgt ttttgttttt tttttctgca atcagaacca ttttttcttg gaaaattaat 48540
ttcaaaatac attcagtcag aaaaaaaagt gcttataatg tttgtctggt gtttcacaag 48600
agctgccctc atgtcctact gcttacatat ctatagtttc catataaagt ttcattttct 48660
acgggctttt catgttagtt cctctaagtt ttctctcaat ttgaaatttg ttttcctcaa 48720
tttctttcct atgtgtttct ttttggataa ttgaaagaag atgcacaatt tcttaattct 48780
tatatttgaa ataattgaaa tgtgttttaa aagtcatcac tgttactata acacagtttt 48840
ccacaagagt tctatctttg gtttttgtgc atttcagtgt gcctggctga tgttcagtgt 48900
cctaggatgc gctgaaatgc tatggcatca tttcatccag ttatatttca catgagctgg 48960
tagagataat cctttagtcg ggacctattg atgcctagat ttttaacagt gtcatacttt 49020
acctgtctta gcatgttgtc ctaagataca agaatgatta agatgtattc ttagatccag 49080
gataatgagc atagcatctc catggaatac ctctttctct tattttctgt tgaattccca 49140
tactaaattc aaaaattaac cgaaaggtag agtttcctca gtctgtctta acacacgaca 49200
ttctgtgcag tgctggtttc tcctgtccac agtggaatca tctcaaactt cttaactctt 49260
gggcagccat gaagatgaag gctaagacac taaatcttcc acaaatttat cttgctcttc 49320
tgtctactct cacttttact ggcagtggca aatagaattg aggttgttaa gagtctgttg 49380
ttacttattt aatagaagga aaaagtaaaa cagtattatt gctacagagc cttgatcaaa 49440
accaagactc aaggaagtac aaatccttgt acttccagta agagcatctg gcaaagagac 49500
ccaagatttt ggcaccatcc atatgctatg tgataatgta tgcatatggt gtggttttaa 49560
gaaattagaa ttctaaaata gtttgtatag tcaggctatg taatgtcgct ttctctagtg 49620
tcctgcagaa agtgagagtg ctctcattag gtacctggtc aggaacaaat tgcttcattc 49680
ttcagttatt taataatgga aacttaaaaa aacaaaaacc caaaaacatg ttttagaggt 49740
gtggtgataa atgtcctagt gcctgccata taagagctta gagattatag acttggtatt 49800
ctttcgaggg ctagatattt taatgcttta tcctgacatt tatcaaattg cacttcggtt 49860
ggtgagtgtc acattaccct gacaaattat taacattata aagaaaggac tgtcaccaat 49920
gagtcaatat aatttttata gtgttttata aatttcatat tttgtataac ttaaggtgca 49980
tgggatattt attaatttct atttgttgtc aacactaatg ctacataaaa tgtaatgtaa 50040
tttatttttg caaatacatt ttaaagtctg taaaaaggac ccaaatatac tccaaatctc 50100
ataaatggta agtgaccctg aaagacaacc tactgagatt tagtgacttg aaagtccatg 50160
tttgcatgac tcatcagaag tactgtacct caaagaattt catcttaagt catagaagtc 50220
tcatgaatat agtcatatgt atcgcaacat gcggcctttt actcaaaaat cctaacagtt 50280
aacaaatcta tatcctatga aatatttaaa ccagtagaaa atgggtagtg aaagatttat 50340
atcttgtcta cgtagaagtc aaattttaaa agtcacccat taaaaatctt agtttagcct 50400

ggcgtggctg tgcacacctc taatccatag cactcgggag gcagaggcag gtggatttct 50460
gagttcgagg ccagcctggt cttcagagtg agttccagga cagccagggc tatacagaga 50520
aaccttgtct caaaacaaac aaacaaacca aaaaaaaaaa aaaagaaaac aaaacaaaaa 50580
tcttagttta actactttga tattccctgt atttaacatt ttgcctatca gtagtatcta 50640
ttcatttctt tagtgcttga ttggaacagc aaagaaagtc tatatgacag ctagccacct 50700
gaaaagctca ctatataact gctggatgac caaatctata tcagagaggg gtggttagga 50760
agagaaaccc aagcattgca tctgtataca cagagcatgt tttgtcattt tggaatacag 50820
tttggatgtt tcttttcgtg tttgtttgtt tgtttgtttt tacaaagcta actctgtata 50880
tgatccaaga gtcaaaatca ttggtatttg cttgcttgag ttgaatacct atgtttacat 50940
gtgaacctgc aaataattgg taccagcttt atctgcagtc caccaaacat ggaagaagtc 51000
aagaactttt ttaataagga aacacaatgc atccattttg tggaatttta ttcagtgatg 51060
attaaaattt gagccatgat agcacaaagg cacatggagg aaattaaaat atatatgcca 51120
aatgaaataa gacactcttt agactatgaa ccaaggatgt gatgatatat aaaaatgtga 51180
tcgttttgga atgccaaaat tctgaggaca gtaagaaagc aaagcaatag ttgcaggggc 51240
ctctggagag gtggaagact gtgtggtcaa acaacaggat gggagtgggg tacaactagg 51300
cagggaagtt attatgacag catggttttc tatggtaggc atttgctgac tcatataaaa 51360
caaggaggtg ccaactgtga tcttcagtga tgttatctca attctcatta acaataggaa 51420
ctttcaagtt cgtaactcag taaggcaaga taataacgtg ggattgtaac atctggaaat 51480
cctctttatt gctgtgtgat tattctgccc aaagtgtcta taaaaacaat gtatcagaag 51540
ggtgtaaaca catgaaactc aagaagaaca aagaccaaag tgtggacact ttgcccctta 51600
aaattgggaa caaaacaacc atggaaggag ttacagagac aaagtttgga gctgaggcaa 51660
aaggatggac catctagaga ctgccatacc cggggatcca tcccataatc agcctccaaa 51720
cactgtcgcc attacataca ctagcaagat tttgctgaaa ggaccctgat atagctgtct 51780
cttgtgagac tatgccgggg cctagcaaac acagaagtga atgctcacag tcagctattg 51840
gatggatcac agggccccca atggaggagc tagagaaagt acccaaggag ctaaagggtc 51900
tgcaacccta taggtggaac agcaatatga actaaccagt accccacaga gttcatgtct 51960
ctagctgcat atgtatcaga agatctagtc ggccatcatt ggaaagagag gcccattggt 52020
cttgcaaact ttatatgcct cagtacaggg gaacaccagg gccaagaagt gggagtggct 52080
gggtaggggg gtggaggtga gggtatgggg gacttttggg atagcattgg aaatgtaaat 52140
gaggaaaaca cctaataaaa taaaagggtg taaactcttg agtatcgaaa tttccagagt 52200
gctcagagcc tcatttgtac cctttaccat cctatctcat gctgttggat tcattgtggt 52260
aagagtataa atgtaaatat gtaggtttaa aatgtatggg aaaatatttg tatatcaaaa 52320
ataatctcat tactacacag gctggacgta ggcctcctgc acatatgtag cagaaatgca 52380
gtttaatctt catatgggtc cctaactatt agagtcaggg ctaccccaaa agctgatgcc 52440

tgtaagtgga atatgttctt ctagctgggc tgtcttgtct ggcttcagtg ggagaggaag 52500
cacctagcca tgaaaagact tgagtgccag ggtgaggagg acatccaacc actcagagga 52560
gaaggggtgg gggaggcttg gacaagtgtt gtgggagggg attgcagtga gcaggataca 52620
aaagtgaaca agtaaataaa taaatacaac tgtaattttg ttactacagc gttcctcaaa 52680
taaagaggag cagaacatgt caaatgagta ccttaaccac ggaagactgg tgggcatcag 52740
ctacatctgt agctggagcc tgagagaagt gtttactctg atagctccac acaaaactga 52800
agcactggga agagattttt gtcttctccc ttcagacttc atgtaacctg gatgcattca 52860
ataagtattt gttgtggcat tgttgagtag tccctttata ggcactgtaa aggtttctta 52920
gtgacactga tggtttaata ctcaggttta atgtccagtc cctatatagt cttaattgct 52980
tgtcttgctt tggaggataa cacatcttcc tcaggctcag actgcatctt acttgcactt 53040
gcacttctac agtattgatc tcatttcaca ggcacctata atgcgtggac tcatgaaatg 53100
atcccataac taaaggagta gccagacata tatttctcct tgcttgtttg tttataacat 53160
tagacaggtg aatgctacag aaggtatttg ctgcccatgg cctcagggca tggcctcagg 53220
tcatgacctc agggtcgact gccttagggc acctctgggt gcccttgtag cagtgctgtt 53280
ttgcaaagcc catgatgagc cactccttat tataaacacg tatttcacat gagaatgata 53340
aggtgagttt ttaataatct ttctaattaa acaaataaag gtatgaaagg aactgaaatg 53400
tttagtgcat gattactaca aggctgtatg cactaacatc ccagtgtcta gggccaagat 53460
ggagagaact tagtaactat ctacaatttt tcttttctct aaatattgcg atatatactt 53520
tctctgtatt tattataatc cccgtaagaa cagatggcct gcacagatta gacaacttca 53580
ttaagtgaca aattgtggag gttggtaata aaagaacctt acagcaacca gttaatcagg 53640
agaggtcatc ataaagagaa ggaagagagc tagggagagg gatggatttg gagaagggag 53700
gacaacagag aggtcatgag agcaggggaa gcaaatagca agccctgtgt gaaaatggcc 53760
ttctgactgg gcttgccatc tgtgaaatgc ctgcttaccc tgggcctggc aggtagtagc 53820
ctaggactgt ctggaaacag attgcctcac ctcatatgac cttccccatg ccctctttat 53880
ggtgcttcat ttggccaatg tcttataatt gtgtagacat gaagcagcat ttagacatag 53940
agtactttat gtaggacagg tttctccaaa gggactcttc gagtgcacct caatccatga 54000
gagagatgta tttcccaaca ttctctgcat agaagctaag gattctctgt ccaacctcta 54060
gtggtcagaa tacatcctat gattcagtca actgtttaga tgttaatagt gtaagtctca 54120
acaagcccca gtgcagtcca tatggttctt ctctgggcat ggcaggagta ggtggttgcc 54180
agtgtctgaa acataaaaca ggtgaaaaca gacctgcgga gagacagcag gaaaaataga 54240
agacagctcg caagtacatc tggtggtgtt tatgagattt attaaaattc aacaaggagt 54300
gcttaacatt tagcaaatga agtttgtctt taggaaaatc cttgtgggat ttatacaagg 54360
atctgttaat aaagggcaca tacaacactc ataatacagt cagacatgtt atgtaaaaca 54420

ggacaagaaa gtaataggat aacagagtgt ttgcacaagg gattttgtga tataacacat 54480

gattcttcag ccttcgctct gcacttttag aggctgggat ttgcatagtg atgcagccac 54540

acgagacagt aaccttgaca tttttgcagc tgtacatatt tgcacacacc aagacacata 54600

gtcttcctgt ctagttacta tttgattctt ttgttcatct cttatttatt accaaaagta 54660

gtgttcacaa aactgtttct cacaatttaa gcttttaaat catggtgtga attacagaca 54720

ttttatccaa gtttaccttt ttcagcagaa atgccatatg ttctcaaaac catttatcac 54780

tttatttaca attctagcta ggttgtttgc ttaatatttc ttagcataca ccacatatgt 54840

ttactttgat actccatttc tgcctcaaat ggtcaaaaag ttcaacttaa tctttttcct 54900

caaataagca tttctacctt atccatcaat aacgttgcaa acagtatttt actgtgatcc 54960

ataacacaaa tcacagatgt atttgaggtt tgtaattctg cttctctctc caatataatg 55020

aacctaggtt ctgtctttac aactctgtct tccatcattt tcattcagaa ggtttggatg 55080

agactttgca tggagagtgt aggagaccat caacttgtct acctgcttgg cctttccttc 55140

cagttaactc ttagctgcct ttgtccctag ccacatcatt tcctgtgaac acagactttc 55200

ccaggtcctc atgataaggc agagtttctc ttaagcttct gcttttctcc atcttcattg 55260

tgtgcattgt gtgaccttct gtcatttgtt tattcacgca tttgaatgag ctaattattg 55320

aagatccaag atagtaccct ttctaacaca gtggctaata agtacttctt gttgatctct 55380

atagttttct gcctaaggca tttgtaattg ggttgatatt gctttctaac ctttagaact 55440

gagatgcagt tgtagcacac acttaactga tagataggtc aaataggttt ctacacacaa 55500

tctcaattgc gacataggtt aaataggctt ctggccacca cattacaaac tacaaagaaa 55560

cctacttaat ctatctacca atggttgtat gtggaatctg tgtaagagta tcaagaaatt 55620

ttatgttatt taaaagacat gtttctatgt cttagacatc cagtacactc tttataccca 55680

cacctcacaa tttaacattt gacacatttg gagtctatca atgtatcaac tttatatgat 55740

gctgcaagat agtgtaacca tcttcttatg cctattgtca gcactgcaag gtaccctctc 55800

taaatccttt cattattaat cttcttcatt aatactttgg tatatgatga ttatgaaacc 55860

tttgcttggc tattcaaaaa aattaattaa gcaagtagga taaagttttc agaagcagaa 55920

gtctaaaaag aacaacagca attgaggact ggaagaggac tcttgttata caaatgtgag 55980

gaatttaact ctgaatcaca cgagctaatg tggactcagg tatagcactg tgtgtctgta 56040

ttcctaggtc tctctcatat gatggacata ccatctttgt tgtggctaga gaaatggctc 56100

agtcttcagc tccttgggta ctttctctag ctccttcttt gggggggccct gtgatccatc 56160

caatagctga ctgtgagcat ccacttctgt gtttgccagg cactggaata acctcacaag 56220

agagagctat ttcagggccc tgtcagcaaa atcttgctgg catatgcaat agattctggg 56280

tttggtggtt gtatatggga tgtatccctg gatggggcag tctctggatg gtttttcctt 56340

ctgtcttagc tccaaacttt gtctctgtac ctcctttcgt gggtattttg ttccccatta 56400

taagaaggac caaaatatca acactttggt ctttcttctt cttgagtttc atgtgttttg 56460

caaattgtat cttgggtatt ttaagtttcc aggctaattt ccacttatca gtgagtgcat 56520
accatgtgtg ttcttttgtg actgggttac ctcactcagg atgatatcct ccagatacat 56580
ccatttgcct aagaatttca taaattcatt gtttttaatt gctgagtagt actccattgt 56640
gtaaatgtac cacatttttt gtatccattc ctctgttgag ggacatctgg gttctttcca 56700
gcttcaggct tttataaata aggctgctat gaacatagta gagcatgtgt ccttattata 56760
agttggaaca tctttgaaat gtaatgaaga aaatatctaa taaaaaagtt ttggcaggta 56820
aaagaaaaag gcttaattaa taattcaata atataccatg gtcttaaaac aaaacaaaac 56880
aaaacaaaac caacaaaaaa agaaacttag aaagatttcc tttcctaaag ttgggatata 56940
tcttttccct tttatccttt caagtcacag gagttgtagg agtcactcca agtatttgaa 57000
gacagagcaa aattacttgt ccagaggaca tcttcatctg tagattctgt ggccatatag 57060
cacagaaaaa agaaattcag tgatgggtat gtttataaag actgaggtga aagcaatctt 57120
gagaggatag tgtgttgcca ccttgtcaca tgtttgatac taagagcatg tcactgatcc 57180
aagtggtgac attctaaatc acagtggtgt ttattattaa ttctttctgt gaggaaacaa 57240
aaaagctacc agtggacatc aagttgccct cttcatattc agaggatggt gtgacttcct 57300
atcaatcaga gaccactgtt agaggaatca tgtccaccta atggccaggc tacttgatct 57360
ctatctcagc ttcattagca ggtttttttc tctctctttt tgacatgtgg aactgtcata 57420
tgaaacagga atgaagtggt cacagcatta gaaggtatac agaccttgag taagagctgt 57480
gtgcttgagc attaaagtag tcctgactcc tgtcagaaga cattctagaa agtactggat 57540
tcaggcaggc tacagacatt gcctagcaac tatttttttgg ccagcttgta cttctgttaa 57600
caaatgatta tttcctgagg ccagaatttc gtcccttcga tagactatct ctgaactttt 57660
tgtttttctt tgtttcatag ttcttgagta tcactctgtc ctctgaagtc acttcttccc 57720
tagcagcagg ccatcagcat tgagttcctc tccctgttca ttgccactaa gtaaagttat 57780
gatgaagaac ccgtgtatac tacccatcag gtgtacatgc acactgcttc actttctaaa 57840
agccagctcc cctctgcagt gacacctcct ttacaccatc actaagttct tcccccatac 57900
agggcctcag agcttcttgt aatatgaatt aggaaggctt aatactggca aggatattaa 57960
gttcaactag aggtggtaga gaaatgaggg tcttgagagt ggatttttgg aatcatgagg 58020
ggcaaggaca cagcattaag tcttataata aatttaaaag gattattttg ggcttttctt 58080
gggaattaaa cacaccctta ataaaaattc tcaggtgaaa aaagaaattt ttttcagatt 58140
aaagacttgg taagtacata ttagggagaa gcacatttct aacttaaaat tcatgctttc 58200
gtcatgttac attaggaaac acgattggtt tgtatatcct tatatctgtg ctttcagttg 58260
aaactaacag cattattgag ggaaacaaag aatttttttt cctttactgc tagcctatca 58320
aacctctcaa tgaaatttta tgcatagtac agtaatcaag agatttttgt caatatttaa 58380
tacaatggat agatgcagaa attattgaaa atccaaatta ttattttgtg aaccatggta 58440

ccgatgttca ggcctgcctt catgcatttg tgagaaattt tgacaagctg ttgtgagtgt 58500
tcaccaaagg gaacacactt ttggcaggac ccttgcattt cctacatgga cagaaagtgt 58560
ttactgtgaa acaactgttt ctcgatgtgt actgtcctct cctaatttaa gcataaacct 58620
cttttcttcc tgaatgtaga gttcagagaa aggatttgtg atgacccaaa gtcttgactt 58680
aaagagatat tttataaagc agtgctgtgg ctcataataa aaagctgtaa gatgctaaat 58740
gccaagcata cagaaataag acattgccag ccatctgact tttgcaactg gatgatttaa 58800
aagaacattt gttgatctca agttgtcctt agaccatcct agttctaaca agatccaaag 58860
tgaaatgtga atgtctgcgt ttggtttctg atagggatgt ttttttaaaa aatattttta 58920
ttaggtattt tcctcattta catttccaat gctatcccaa aagtccccca tactctcccc 58980
ccaactcccc tacccaccca ctcccacttt ttggccctgg tgaaaaactg attttcaaat 59040
cattctggca tgactttgaa agcatacctg ttcaacactt tttccttgtt cttctacctg 59100
ccctttgata tttctaacca cccccatatt ggtatgggga tatgaaaaca ttagtgcctg 59160
gtatctgaac aggcctgctg aacaggaaaa aatgaaatta agtcatgtaa aggtgagtgt 59220
ccagaagcca cagaagtagg aaaggaaaga aagaggtgtc tgaacagtgc tgaaagaagg 59280
tatggcttca gactgtctgt cacaccaaaa attaatggaa caaataataa gtagaataat 59340
tttaacattg tctggctttc atagtggtgt tgtggttggt attggctttc tgactgatga 59400
gaaattttat gttgtttgca tagactagtc ttctttccag gggatacatg ttgaaagggt 59460
tacgtcccat catctacctt gctacacaca caacacacac acacacagat agagagagac 59520
agagacagag agagacagag agaaacagag agacagagag agacagagag agagacagag 59580
agagagacag agagaaagag agagaggaag aggaggagag aggaagaagg agagagatgg 59640
agtgagggag gaagggcaag agagagaagg agagagaggg gaaagggaga gagtgtgtca 59700
atgaatagat aaatgaggta acatgtttat gattagagat tctgagcaat gtgggtataa 59760
tgctccttaa aaatattatt gaaacttttc tgtgggtttg aattttgaat taagtaaaac 59820
ttaaattaca aaataagtat gattcactga atctcctata aaaaaagatt aattataata 59880
aagacaaagt gggtgttttg gaaagtggga actttctaag caaagaaatt taggcagcca 59940
atttctctcc tgctactggg tactgcccta tccaagagtg tgtccatcat tctgtcctgt 60000
gcttgtagta gcgcatatca tttgtttttc cataccatga gctctgattc ataatctaag 60060
gaggctggaa aaatgtcctg ttgtgtacat gtcagacaga gaaaggagaa cagatttttg 60120
gcagatcact agaaagccac aataagcccc ctatgaagca caatatgggg tctgatacca 60180
gaacctttcc tcaagaggag agctgatcat ctttcttttg tttgaaactg ggctaggaat 60240
ttaacaagaa gataccgttc tgtcagtgag atcacaaaag gtgaatgtgt gaaaaataat 60300
aatgcctatt caaaactagt acaatttaaa taaaatggaa cattctaaag tacaatttag 60360
caataaattg ctgtaggcag gctgaaactc atcattaaat acatcatgtc aaggagaaaa 60420
agatgagttg cagaaatagt aattgctaaa acagttaccc ccctttttg tttaaagata 60480

tttatacttg tcaacattca agattgtaat tttaaaacca cagtaagaaa acatgttatt 60540
aatgaaagtg ttgcattttt tcacaggcag caatctgatc accttggttg ctctgtacag 60600
aactgacctg gccatgtatc tagccatgac cagaatacaa ggatgcccat ttgtgctgca 60660
gatttccacc cactcacatc caattcctcc tcacatagtt ttactagtgg catattctga 60720
ggccagactt cctcttggct agaacataac cctttaaaca aatctatatg ctattctaat 60780
ggaaatatct tcaggcattg ccctactggg catagattca agtcagcttg tgggccagct 60840
tgaacttggc ttcttgtatg tggtttgcct ctagaagcat ctactgccag caggacactg 60900
gcagcctttg tgaatgtaag ctcagaactt tcttccaata tacgttatct tttatttgaa 60960
atagtttttg gacttatgaa ggaaatcaaa attattatgt gggtaagtaa attatatgaa 61020
gaagactcag ttaagtgtct atggtgactt atcccttact tttcaataaa ctttttagat 61080
tccttttcac ccaggccttt tgtcgctacg tcgtgagcca agtgttcata gactagtttt 61140
taatagacta tcaaacacaa ctgtgacatt atgtagaagt aaaggcagga ggacttgggt 61200
tttaggtaaa ctggaatata cagtaagttt aaggccaaca aagactacat ggtgaggtcc 61260
tggaggtcct gtctccagag aacaaaaagc aaaaacaata gcaaaaaaaa aaatcccaaa 61320
aacaacaaaa aatacaagga aagagattta acattatcat atcatctaac ttttggcatg 61380
gtagcaacat aatagtagta gctctactat agtctgttac ccatcactgc ttgtgatttt 61440
acaagatcca caagtatata caagatgaag ttcacagatg caactgcacc aaccacaagc 61500
actttgggta gaatatggca gtatcctagc agggagaatt tatgctcagg cagctaacaa 61560
gtgattaaat ccaagtctgc ttttgctctc ctgcaatgca gtgaggaaat cagatagccc 61620
ctttgccctc tgtttatttt gaattaaact ttatccactc aatttttaaa aatttactag 61680
attaattaat gttttatata ttataaatac agttttgttg gacatctttc ctaatatctt 61740
aactggtcct tgggaaaatt tatagtaaat aatagaagta caaaattgcc actcaaagta 61800
ttgtaaattc ccaatggata aattcatgtt tagtaaacat ttcacattta atatttgttc 61860
acttttttcat tttcacgata ttttttttcta aataagtgcc tgtcaggtca tgaaaatgcc 61920
agtaaaatct catgaaatca tttatccata aacaatcttt tgatgttagt gggctagttg 61980
attctatcaa aggaatttag agattatcag tagcacacag ttttagaatt ctagggtctg 62040
attgtgttac acctcctgtt agagtctagt tatagcagaa tagttgctgt caatatcttg 62100
ttgctgccaa tatcttgtaa ggcagtgtgt ttactggttg gaaacatgta aatctaacca 62160
ctttataagc agtaatagtt tttatagttt gaccgttatt aatttttttat taataaaata 62220
tataacactt tcaatttcag ttatatatat atatattcag tcctctttaa tacatcataa 62280
cacttgtcaa tagctatgat ttatttatta tattgtgtgt atgcgagtac cagtatgttc 62340
attacatgtg tgtatgatcc ctgcagaggc cagaagaggg tgtcagatcc cagggaacta 62400
gagttgcaga aggttgtgga ccacagtgta ggttttggga acagaactca gattcttgcc 62460

aggagcatca agtgatttca taactgctta gccatctgtg tagccttgtt ttttctattt 62520

tttggagtat gatgtgtttc aaaatacagt atctaaatct gtagtccagg atagcttgag 62580

attcactata caggcttccc cctagactca agcaaatagt attggtttta actaagctac 62640

atttaaaaaa tccatttgcc agtgtgtttt agttgaacat atagacttac ttgaagcagt 62700

ccctagacac agatcagttc atggctcaat tccaagatgg gtctcatatg gtgtatgata 62760

aaaggaaagc agtacaagaa atccatctga tctttggagg cttgtagaaa ggttaacttg 62820

acatcttatc ccaccttctg gtgcaggtag gtaactgaca cagtgatatg atgactgggc 62880

atgatggacc cagaaagaga aagctagata atagcatgat gtcccttcag aagagcagct 62940

tgtttcatac aaaacaatga aaaaattatc acctgttgat ggagaaatgg ctcatcattt 63000

acgatgactt gctcttcctg caatgaacct ggcctcagtt cccagcaccc acatggtgat 63060

tcacaactgt ttgtaactac agttctaggg atactacatc ctcttctgat ctctatggtc 63120

attaggcatg tgcatcacac agagacacac aatcagggca aaacatatac atacataaaa 63180

ggaaaataaa ctttttttca cattgaaaaa atatttacct catccccact tgtacaagaa 63240

atatgtgtcc aataccattt gtattgtaga attttatact gtttccctat actgtcttat 63300

acaagtaaaa cctaaactag ataatctgat aatcttattt tatatatttg aaattctttt 63360

tagattgaat ctctgttttc agattaaaat gagtaactac acatatattc caaacaaaat 63420

aatttgtaaa agaagcatga ttatttttaa gttttataat tgagtaaata gcattgactc 63480

tgaatgagtt attaaagttt ttcttaattc tcatttattg ggaaggaacc atcaaagaaa 63540

cgttttactt tacactcatg gcagtttttt gattagaaaa taatttctta ttacatatca 63600

aattcctaat attttgtgca agcttcaaaa gatgccaatg aaatttccag aacaagagtt 63660

cagaaacaac tgtctacatt caggtaggat gcacactgtt ctttatgttc agttttatct 63720

ctagatccag atgaactgaa ttacagtcag tcaactagac agggaaaatg agcatctgca 63780

cagctctagc tttggctgat ggagccaact tactacatag cttcctgtgt tgtggtatca 63840

tcaaatattt aacttctgtg atatttcttt gcctgttgcg taagtttaac caacaaaaac 63900

acatttccca ttgcccatcc caacatgtaa tagcagcaat tatttaaaaa tcatagtcat 63960

ttgctcttta tgtctacaag acaatacttg ttagtacatt caatataaat gttttctttc 64020

acaccaaggc agtttcctga ttcattagag ggaattttgt atctgagcag aggaactctc 64080

atgttccccg ctttcccttg ttataacatt ctgagctcca tgaccatgta ttattccagc 64140

tccatgtttg gacacgggtg aaggaagcat atcacatgtt cttcctaaga gacttagact 64200

aagtatgcaa aagacccaaa attttcgaag gtccaagtcc ctatctgttc ataagctcat 64260

ccctagtcat tcattgcttc agctgctgtt tttggaccag tattgagtca acttcacatg 64320

cagtttctcc ctttctacca tgaccatttg tacatcctct ttgtttcatg gtttaatcct 64380

gcaaaagtat atatttactt ttgtttggcc taatcttgac cataacctag attgtacttt 64440

agacttctta ctctttaaaa ttttaaaatg tgcagcataa ataattttct cctactttga 64500

ttaatccaaa aactatttcc aaggtcatta taaaaggtcc caaattatga gttccaatat 64560
tatggtcagt agacctattt gtgctctata acagtgttat ataatatttt aataggaata 64620
ttagaacgga aatgggcctc atgtgaacaa tgtgttttat attactccct tccccattta 64680
tcatgcctgg tatatgtgag tatgtatgta tgtatgtatg tatgtatgta tgtatgtgtg 64740
tatttttat gtattgttat gtatatacaa gtgatatata tatatataat atatatgtgt 64800
gtgtatatat acctttatgt atgtatatac acacacacac acatatatat atacatacac 64860
acatatatat atatgtatat atatatgtgt atgtatatat atatactgtg tgtgcattca 64920
ggtgcatttg tgtgtggagg catctatgtc tttggcaatg attctcatag aatttttga 64980
aacattgtct ctcactgaat ttggaattac tgtttcagct agactggctg gcccttgaac 65040
ttcttcaaag ccccctgcac tgggtttata aacacatcta tgccagcttt tggttgtatg 65100
gtaggtatac aagttcattt cctccttctc ttcagcaaac actttaccca ttcttcataa 65160
ttcctatgct ctaagccaag atatttttt cttaatgtgt ccaccatggc aaaggctcag 65220
aattataaat gtgtttctcc aaaaccctca gttaagaata tggctgccta attatgcatt 65280
taactaatag gcttctgaaa ttaataacca atataatatc gtggttcact aagacaaata 65340
tttgtagatt ttaataaagg caggtaatga agctaaagtt aaagaaaacc ttcaatacta 65400
tttatcactg tttgtgaaca aaatatgatg aaaatatttt gcccataaca taacactgcc 65460
ttaactatat ccatcttgac tcaaagagat agaaatccgt tctgtcactc acagtatatg 65520
tttgcagatg aatgctagaa ctgatcacag atgggaaact aggtgtgcat tgcaggggct 65580
caggtatagg tcacaactct atcagtctct gaacatcatg acacaggtag gaagaccagg 65640
aagaaatgtg ttttgtttca ggcctctata atgaaaagtg aatgtgaaaa ctcaaaactt 65700
caccttgaaa agcctctgta tatcttatat gtttttccca tttcctggtg aataggtaga 65760
atacagggaa caaaaaccac tgctctcatc ccagtatcag cccagactct tttcccagta 65820
cctcatctca cagatattcc tccattcctt cctccccttc tcctctgaga atagggagcc 65880
ccacttctcc ctataacctt acccccaacc cctggcacat caaatcacag caggtccatg 65940
taaatcccat cccactgagg ccagataagg cagctcagct aggggagcag gatccacagg 66000
caggcaacag agtcaggggc agcccctgtt ccaaaccatt ctcattccta gtaatgctgt 66060
cctagcacta tgctgatgac tggaccaaac atacaatttt tgttcttact tgactcttac 66120
aacttcaaaa attaacagtg taaatttcca gttagctttt gattttaaga caagctaatt 66180
agtgaagaat taggcacaga aatctacata ataaaataat tacagaaaaa gaaagtatct 66240
aaggtcagca ttagtatggc atcttatttt ctgtctgtca tggggaaaca agcaattcca 66300
tatggatcgt agaggtcaga aagaggcact gctgatccca cactgctgtt ctatctagca 66360
caagcagcaa gagactctcc aaagcccagt aagcaaaagc gccctgctta tgttggctcc 66420
actaatgcag ggaatttcaa atgatggatg aattaaaaaa tttgaaagag gttccgcctg 66480

acagccactc atctgtgata tatcctttgc tgtcacgatg attagccatc tgttcctttt 66540
ctagatctta cccatccact atcattacca tccaccatca ctatctacta ctaaaaccat 66600
taaagcacat ttaaagatgt gaggtctagg aatggtatct ttaaggtagc atatatgtcc 66660
agtgtggtag cacgtgctca ggataggtcc tgagttctat cctccagcac catcaaacca 66720
caaaagataa aaaatgaaga tgtatgaact atatacttta ttagcttcta tctattacta 66780
gcaatacaat gtcacactcc atggcagtgg aaggaaggag ataccaggca tgccacttga 66840
caagttttta gacttgtgac tggtttcagg ttatgttcat aaaagacaca tggaaaggaa 66900
aagtagttaa atttgtgtgt ttggatggat ttactttgag gactgtggtt atgaagcact 66960
tgtttctaga ttatttcctt ttatccaaag tagaagggac ttaaaattgt ctacgttagt 67020
agttctcaac ctgtacctgt ggattgcaac ccctttgtgg tcacatatca gatatctaca 67080
ttatgattca taacagtagc aacattacag taatgaagta gcaacaaaag aatcttatgg 67140
ttgggggtca tcacagcatg aggaactgta ttaaagagtt gcagcatgag gaaggttgag 67200
aaccagtggt ttaaggtcag tgtacagtcc caatttgaag cagcacagat gcaagtgctc 67260
ttgggtaact tctacatggt tgttttactg tagttactga tctaactgtg aaaagtggtc 67320
agcctgttgc agactgaatc tgaatagaaa tcacaatttt gcatactctt ggtttcataa 67380
ttcctttatg cacatccttc tgagaccctg gttgtactac actactacca cttgggccta 67440
gagcccctct cactgtgaaa gaatgattgt atccttgggg agctataaag attatgactt 67500
tgtgaattaa tctcaaatca gggagccaca ggacttccaa ctttattttc aaatatgtgt 67560
gaactcccct gtgagatggt ttatcgaagc ctttgggagg tgcagccatc tgattgacca 67620
gttatcttat ttgcaattga ctcttttatt ttatatgaag ctctgtttgc taagaaggac 67680
aattcaatca gcagtcactc atagaactac tcagttgatg taatgaataa agagacatta 67740
gggtcagtga aatgactcag tgggtaaaga aacattctgc caagtctgct gacccaggtt 67800
tgatacccta ggatcgacat agttgaagga aggaacacta ttccaccagt tgtactttga 67860
cctccccatt ctcactttag cacatatgca tgcccatact aaataaatgc aaagtttaag 67920
agaaacacca agacttattc aacaaattta ataacttatt agaatactca agtacacagt 67980
caaagaaaga agttatatta tggattaata gcaaaacaca tactgagtgt taaaaattat 68040
atactggagg agaatgggga agggtagatt gagagctaga catatacaac agagtgaact 68100
ttcatctggc ccttcaaaat tcttagtatg aaaaggaata gggacttgca actgaaaaga 68160
actctaatgg caattcataa aaactttagg gtagaattta gaagagggaa ttaaaatttt 68220
aagtctacaa tcaattcata caacaatctc tttatataac agtgtttttt gtacactgaa 68280
tactgtgcaa atattttgta aaaggtatca agaactattc tgttaacagt ggcttgcata 68340
taatcagaca agatggcata catactctac ataacgcaca tttgtataaa acataaataa 68400
attgtaaaaa caatagccta cacactatat ttttaaagta gcattttctt atttttgtaa 68460
taaataagat ttttgagatt tagcttattt agccaactaa tcattgacct ttttataagc 68520

agatgtagta attcttaaag ttcccaatta aaataaaatg caaagttttt gctattggtt 68580
ttgatacact gactccaaac catatggtag tataaagata tttcttgaaa actctgaaat 68640
cttttcattg tcttctctta gaattgtttt atgactgttc ttctttaaca gtgtagatga 68700
atgaatgaac atccaaaatg aatagaccaa gcagcccgtg ttagaaaatt cattagtttt 68760
actggattcc actgaggact ggacaataag tggcaaaaca tatgaatgca gttctgtgga 68820
agcttcctca ggatttaaat aaattcaagc aacacacaca cacacacaca cacacacaca 68880
cacacacaca cacacacttg tgtacaggga ggagagccat tgtattagaa aatgcaacct 68940
ggatggccat cagggtgtga atgtcagcta ccacaaaata tatcagactc aaagctgaac 69000
aggcaccagt acttttttatg gagaagaacc aggatggcct caaactcacg attacccgtc 69060
tcatcctccg gaacactggg attataagta tacgccacca catttggtga aagaaaggac 69120
ttgttttgaa tttctgtatg aatgaagttt caaaagaatg caattaagta cgagatcaaa 69180
tttagaagaa agatttgatc taaaaaatac aactaaatga gaaaaggtgg ataggaaaaa 69240
gcacagtatg cattctttat tgtgttgctt tcacgatgtc aaaaacaaat taaataggct 69300
agtaaaatgg aaaggccatg aacaaatgtt ccttgtagta tagaatatac tagactatct 69360
cttctatata aattgattta aaattaatga caaacttggt ttcaattcaa ccagctcatt 69420
ctaaaaagtt gaaatataca tatgtgtgtt tgtgtgtgta caaatgaata tataatgtat 69480
ataatgtaca atgtgcatat acattgtata catatatatg ttagaatgat gggtgtaatc 69540
atgtatttat atttttgaat aaattctaaa cataaccaaa ttccagaaca acttagcagt 69600
actaagaatt actgattaca ttaaagttta tttataatca atacacaaag atattaatgc 69660
atgtaattct atcagtattt atgtttctga tgttataatg ccaatgttta tttcacatac 69720
gtttgaatat tgtttaatat tatacatatt ctaaatatag taccaaatga tatttttatt 69780
tacattaatg agaaaatgta agtcctggtg aaattctgtg aaaaaagtta tgtatcagtg 69840
aaaaatggta tggaacaact ttctttcagc tccaaaaatg gcaatacttt tccctttatt 69900
caataaagag tatttttaag tagaaaagtt aaaaaaaaaa aacgggattc tagtcagaca 69960
actcgaaata tatgggtcag agtaacagta tctctggaat gcaggcttaa aacctgacta 70020
agatcagaga cttgagtacc atacagggtt ttatgtgtgt attgtctgat aatggcaaaa 70080
gaagatggtt ttaaaaatga ctgattcata agcaagtcaa cattaagtga aacttgaatg 70140
gaaatttagt tttctagtaa taagcattta gataataagg agtgccttat tattattaga 70200
tattaagctg gtacccccctg tgccttggct atgactctga aatgaataga atgaagttac 70260
agttaacaga gatgcagagg cagacacttc cctgtgctac ctaaacaggt acttagtgta 70320
ctttgaacct tatttctgac aggtctgaga tgtaaaagga gggaaaccag tgagcccagt 70380
gattctagcg ttgccgtgaa ctgctcagag gtagtttgtc attgcacaga gctgttctca 70440
taatagttat gatcccaagc cttaaattgt tgggaactat gttactgttt atttgttgtt 70500

gttttttttt ttttcctcta ccctctggtt aaaatataat tttgatgcat cagcatagtt 70560
atgaagggga cttactagca agtgcttttt aacactgata tttgggtctc ctggattcta 70620
tgaaagtcat gtctccttaa ctactttatc tcctgcactg cgccctcccc cccatatcca 70680
cagagcatct gaatggtcac tcgtggccat gctccagagg tgagtgatgt acacacgggt 70740
ggagaatcca atttaaaata gcatgagaat gtagaagaga caaaggagca ctgcaggagc 70800
atgtgcagat ataagtgctg gaagtcccca gactgctttc tccagacttt ctcagctcct 70860
ggtgttgctg cccactctgc tgccctggtc cttaccttaa ccagctccct tatatgcttc 70920
catgttttat ccttcactaa gtctctttct ctctggttct ggatgcttag atgttcttcc 70980
atttggttcc atgtcatatg gtcatttctg tttctgcagc agctaaactg ttggataatg 71040
gtttgcaggt ctgactccca agtaccactg tgagctcatt aacaatggct gccatctcct 71100
tgtatcctct gcactatacc agcagatgaa gttggaccat gggctgtatt ccatggtgaa 71160
tgagtgctct gtgctggttg gaaccctata gcaatagaca atgtgaatac attgacagtg 71220
ttttgttgtt gttgctgctg ttgctgttgt tgttgttgtt gttgttgttt ttggcaagat 71280
actcacttca gggttttaag aacatgaccc aacctgttaa aaatcaataa attcagacag 71340
aggatttttt agttaagagt taaggtacaa atgagagatc actgaaggtt ttaagcagac 71400
tgtaaggtaa gaagggaaga aagttcccaa agtatatgct aggagctagg gctccagtgt 71460
aaaggatggc taaacgtggg tctgttttaa ggggtgtaca aacatatttg ggctaagaag 71520
gcccaatatt tactttcgaa tgagggaaaa tgcttgtgac ttaacaggtt gcctgttcaa 71580
tgaactaaaa aaatgtaaac tcttactcca taatctcttt aatatctcac ttttgccaaa 71640
ggaatctaac cttattgcca ccaaatccca ctgaactcct agacgagcaa aaaaaaaaaa 71700
aaaaaaaaaa aaaggggggg gggagttcta ccaatcccca tgacattctg caattttcta 71760
attatagatt gaaaaagagg gttgaattca tttcatggga cattcactgt gtgtccctac 71820
aggatgctga gccataattg acccacacat gtggtgtgtg atatttgatc agggatccta 71880
ggctggaaag acagctcagt aggtaccttg caaacacaag gatttggatc cacagaactc 71940
aattttaaaa agctggtcat gataacacac atgagtgatc cccgctctaa aagacaagga 72000
tagtaagatg tctgggtttc ttggctaacc agcacaacct acttggcaga ttccaaacct 72060
gctagagata ttgttggaaa gaaagttctc aacagaatct gaggaacaac accagaaaca 72120
gtctacatgt ctacacacac ctatcatccc cccacatcca catatacaca tgtacatgta 72180
tacctataga taaacattac cctccccccac acttgaaaat acacatatac acaacattca 72240
ttttaaagac acaggctaca gttttcactg tcttgggcat tgctcattct tttttgttaa 72300
gaaactgcca atgccattcc ccttgctaat aaatgttata aactgtggtc acattatgct 72360
gcagtagaaa tgccagagac tcttcctttc tactagtatt ctgatgtgtt tattcagctt 72420
cctcccacct cctctatccc tgtttaccct tcatagtgtc tcatgacagc tttctactct 72480
ctatatcttt gaaataaaga ctttaccaac attttaataa ttttttttcat ttgccgtttt 72540

tatttttatc tttttaaaat tattattagt tattttcctc gtttacattt tcaatgctat 72600
cccaaaggtc ccccataccc acccccccaa tcccctaccc acccactccc ccttttttggc 72660
cctggtgttc ccctgtagtg gggcatataa agtttgcaag tccaatgggc ctctctttgc 72720
agtgatggcc gactaggcca tcttttgata catatgcagc taaagacaag agctcccggg 72780
tactggttag ttcatattgt tgttccacct atagggttgc agttcccttt agctccttgg 72840
gtaaattctc tagctcctcc attgggggcc gtgtgaccca tccaatagct gactgtgatc 72900
atccgcttct gtgtttgcta ggccccggca tagtctcaca agagagagct atatctgggt 72960
cctttcagca aaatcttgct agtgtatgca atggtgtcag catttggaag ctgattatgg 73020
gatggatccc tgcatatggc aatcactaga tggtccatcc tttcgtcaca gctccaaatt 73080
ttgtctctgt aactccttcc atgggtgttt tgttcccatt tctaggaagg ggtaaagtgt 73140
ccacactttg gtcttccttc ttcttgaatt tcatgcgttt ggcaagttgt atcttaagtc 73200
ttgggtatcc taagtttctg ggctaatatc cacttatcag tgagtacata ttgtgcgagt 73260
tccgttgtga ttgggttact tcactcagga tgataccctc caggtccatc catttgccta 73320
ggaatttcat aaattcattc tttttaatag ctgagtagta ttccattgtg taaatgtacc 73380
acattttctg tatccattcc tctgttgagg agcatctggg ctctttccag cttctggcta 73440
ttataaacaa ggctgctatg aacatagtag agcatgtgtt cttattacct gttgggatat 73500
cttctggata tatgcccagg agaggtattg tgggatcctc cggtagtact atgtccaatt 73560
ttctgaggaa ccgccagact gatttccaga gtggttgtac aagcttgcaa tcccaccaac 73620
aatggaggag tgttcccctt tctccacatc ctggccagca tctgctgtca cttgagtttt 73680
tgatcttagc cattctgact ggagtgaagt ggaatctcag tgttgctttg atttgcattt 73740
tcctgatgat taagggtggt gtgactctaa ctaaggaagt gaaagatctg tatgataaga 73800
acttcaagtc tctaaagaaa gaaattaaag aagatctcag aagatggaaa gatcacccat 73860
gctcatggat tggcaggatc aacattgtaa aaacggctat cttgccgaaa gcaatctata 73920
gattcaatgc aatccccatc aaaattccaa ctcaattctt caacgaatta gaaagggcaa 73980
ttggcagatt catctggaat aacaaaaaac agaggatagc aaaaagtctt ctcaatgata 74040
aaagaacctc tggtggaatc accatgccag acctaaaact gtactacaga gcaattgtga 74100
tcaaaactgc atggtactgg tatagtgaca gacaagtaga ccaatggaac agaattgaag 74160
acccagagat gaatccacac acctatggtc acttgatctt tgacaaggga gctaaaacca 74220
tgcagtggaa aaaagacagc attttcaaca attggtgctg gcacaactgg cggttatcat 74280
gtagaagaat gcgaattgat ccatttctat ctccttgtac taaggtcaaa tctaagtgga 74340
ttaaggaact ccacataaaa ccagagacac tgaaactcat agaggagaaa gtagggaaaa 74400
acctcgaaga tatgggtata ggggaaaaat tcctgaatag aacagcaatg gcttgtgctg 74460
taagatcaag aattgataaa tgggacctca taaaattgca aagcttctgc aaagcaaaag 74520

acaccgtcaa taggacaaaa agaccaccaa cagattggga agggatcttt aaaactgtac 74580
tacagagcaa ttgtgatcaa aactgcatgg tactggtata gtgacagaca agtagaccaa 74640
tggaacagaa ttgaagaccc agagatgaat ccacacacct atggtcactt gatctttgac 74700
aagggagcta aaaccatgca gtggaaaaaa gacagcattt tcaacaaatg gtgatggcac 74760
aactggcggt tatcatgtag aagaatgtga attgatccat ttctgtctcc ttgtactaag 74820
gtcaaatcta agtggattaa tgaactccac ataaaaccag agacactgaa actcatagag 74880
gagaaagtag gtaaaaacct cgaagatatg ggtacagggg aaaaattcct gaatagaaca 74940
gcaatggctt gtgctgtaag atcaagaatt gataaatggg acatcataaa attgcaaagt 75000
ttctgcaaag caaaagacac cgtcaatagg acaaaaagac caccaacaga ttgggaaggg 75060
atctttacct atcccaaatt ggatagggga ctaatatcca atatatataa agaactcaag 75120
aaggtggact ccagaaaatc aaataatccc attaaaaatg gggctcagag ctgaacaaag 75180
aattctcacc tgaggaatac cgaatggcag agaagcacct gaaaaaatgt tcaacatttt 75240
aataatttta atacagtcat ttattgtaac aaccatttca aaaacacttg tttccttaga 75300
atgaaaattt taactagata aatgtggtta tccatgaaaa tattaaagaa tatacaatat 75360
acattatatt attgtatata taatatggta tagcacatga tataacacac acacacacac 75420
acacacacac actttacaaa aatgttaaaa aataatacca cacagaatgt tgtgagaaaa 75480
tagcattagt gtctgactca tcttctcata cttttagaaa taaaattaaa gttcttcaca 75540
ctttgtgtaa agcccaaaag gttcagccct aaggaaaact tgaaatttgg gtgttaaata 75600
agccaccagt ctaaaagttg gacatttctg aattaaggct catgcctcat ttccaccaag 75660
tgctgcttca aaacaaaaca gtgataatgg ccacaaaaaa cctctggcaa ctctaattta 75720
aggtgacgta tactgatgaa tgatttattt atcttagaag tgccaatatt tcactctttt 75780
ccatgtcttt aaagcaactg aaatagtttc atgagcacag gcataactgg attcttggat 75840
ttggggagaa atgatttggc tatgtgcctg ttgctgagga aagaaactgc caacactgag 75900
gatgtttcta aagccaagtg ccaaattgtt tgtgcttagc atcatgtatc aggctggccc 75960
tgcaagatga ttccattcca aaggtcagaa atactctgcc ctgtttccag aattttattc 76020
agaaattgga aatagagaca gcttcaaaat agtacacatc ccatcttctt ctcagaatga 76080
gggctttgat ccaagccttg ctatgtaaaa tgcatgggag gaagaggaac ctaatacaaa 76140
ctttgtttat tctatccgcc attgctgttt tcatcttcag aagaattctg ctttttggtt 76200
tagtggtaat aacttgtacc aagtcgatgg caactccacc cagataatga tgagtttgtg 76260
agaacatatt tttcacatgt ttgaagaata gagctacata gggttgaatc tgccttgcaa 76320
tttgatcttt atcagtttta tggaggcata tctccatgat taccctgtg tatgtttact 76380
ttaattagat aaataaccag aaaccaattg ctccctcact tatgattatg tgtattctcc 76440
atggagtgag agacaatagc tagtagccat ttgtttacct tcttactttc ttactctcac 76500
tacccagtat ttcctaatta aagctatcag cagccaccat atgcctgtga catgagtctt 76560

actctgtgga aacaccatga tcaaacaaac aaacaaacaa acaaacaaac aaacaaacaa 76620
caggttgcat tctcagcagt tgcagaaaaa ctcactttct tttgcatttt caacttgttt 76680
ttacattaat cacaaacatt aacagtctaa caacataatg tgttcactta aagataaaca 76740
acacagcagt tgttaactga aactcagatg tcaacactgg gttaagagaa ttatggtggg 76800
tttaccgaaa agttgaaaga gagaattgtc tcagtgaggt gtggccttca actggaagca 76860
ctgaagccag acaattagag ggaagattca aaggaggtgc tctcaggatt taagtcacca 76920
tgtctcagtc ttcagaagaa tgtgcagctg accaaggcca gacctgtgaa gagacccaga 76980
aactacaggt tgcagcagcc tccatcgatg ttgaggagcc atgttcctca cctcatctta 77040
tggctactag tctgaaggac cagaccagtg aggagaccca agtctccaag gatgtggagg 77100
aaccatgttc ctcttctcaa cttcttatgg ctagcgacca ggatgattct gaagatgaga 77160
cagccagtac ttccagtgat cttcagcatc cctatgactc ttcaagcgag tctactgagg 77220
atcttgatga ccaagaagtg cagggtagcc cagtcattcc accagatcag tcagatagca 77280
cagatttacc tgtgatgact gtagatggga aagttgattt cttggtgaat tacatgctgt 77340
acaagtatca ggtgaaagag gtgatgagta tgaatgatat aatgacactc attgtcagag 77400
aggatgaaga tcgttttcat gaaatcctca tgagagcttc tgagcgcatg gagatggtct 77460
ttgggctgga tgtgaaggaa gtagatccta tcaaccattg ctatgctctc tttatcaaat 77520
taggtctcac ctatgatggg atgcgcaatg atgagtacag ctttcctaaa actggtctcc 77580
tgatactcat cctgggtgta gtctttatga agggcaaccg tgccactgaa gaggagattt 77640
gggaagtatt gaatccaatg ggaatctatg ctgggatgac tcatttcatg tttggtgacc 77700
ctagagagct gataactgat gagtttgtga gggagcaata cctggaatac cagccaatag 77760
ccaatagtga tcccatacag tatgaatatg tgtgggggct acgggctaaa gctgaaacta 77820
gtaagatgag agtgttagag tttgtggcca aggttcatgg gtcagaccct actgtgttcc 77880
tttctcagta tgaagaggca ctgattgaag aagaagagag aacccttacc atgctattag 77940
agcatgctga ttcaagttct acttctggtg aaagttctag tgacacaagc agcaacttct 78000
ctcaggtcta gtacagtcag agatcagttc cttctgtata atttacagag aatttttaaa 78060
cttgcgggga aagatgtacg acctagattg tatagggaga agggagcgtc ttagctgcat 78120
agttctaatt tgtataagca ccatgccatg tttttcattg tttgcccttt atatatgaaa 78180
atacttacac ttaaaagcat tgttgtttag tttcaaaatc tcaacttaat accattcaca 78240
aatttaataa gagcgttgtc ataacataaa actaattggg aaataatccc atctatctgt 78300
acagttatct ggaatagtta aacatgcgtt ttctaagctt ctacctttta aacagctttc 78360
ttctaattac tccctttgta cctttccatt tctcagtaaa attacatgct ctatgtggag 78420
ttgtttactt tatagttgcc aataaaattc aagaaagttt aaaaaaaaaa agagagaatt 78480
atggtaattc ctctcaaaaa aaaaagtgtc tcaccattat tttctcacat cttattagaa 78540

gggtatctaa caagatccgt aggtatgtag agccagcaag catctggctt ctcatctctg 78600

tggtggaagt aattaaagta ggaagtgccc attttgactc tgctgtcagc agaagagaac 78660

acactagact tgttagtgca gccttagcca ggccatctac ttccatgaca tgggataggt 78720

ataaattagc atggccatcc tttcttgtct ttgtagttca tacagaatcc aggaagcaac 78780

acatttagga gtaggagttg taccattttt gcataggaaa tgtacagttt cagtgtcaat 78840

gcagggaatt actatattta taaaaatcac agagtccctc tggctggtgc tttttagtca 78900

aatatgaaat gagtagtatt ggaattacaa gctggcatca cttccgtcat tggagacctg 78960

tttctgcagt cacagctgct aaaacagctt catgattcct ttactacgag ctttgtggtc 79020

ctgcagatga aggatatcat agtacatttc ctgcatctct catgacactc gtgatcagca 79080

tataagactt ttcttttgtc gagaattaaa taagaatatg gccaaggaac agaattagta 79140

ttgtgaagaa ggtgtaatga gataagataa agaatgattc agagctgcca atcatgtatc 79200

cctcttgctg ggttcattgt ctctctatct caggcattga atgaaacata ctcttgttcc 79260

tgactataaa atcagtaata taaaacaacc aatttaatag catttagaag agactcaata 79320

gaccggcagg gagaagactg tatccactga tttaaaatat gtattatgat accataaatt 79380

ttaaaaagaa aggaaggata gtcttataaa ttcctaagtt tgatagcaca taagggctga 79440

atggtgatca cttgggtccc ctttaccttc attggttctt tgcatcttca cctcgagcaa 79500

ttgattgtgt ttcgcttgtt tgggttctct gcctttctcc acactccatg atttttttca 79560

aaactgtctt ctgttcccct tcttgcccac attgtaaaca tgtgaagtag aaaagtgaaa 79620

gtgattttgg tgtcttttct tcagaatcat tatgttttcc agcaagaact aacactgaaa 79680

gctacctgaa acacaaataa attaatagaa ttgagccata cagtcatctg tatataaagg 79740

tgtaacgtaa aagggccact atataggaag gcagagtcag cataaggctt gatttaaaaa 79800

aatggcagaa caattatccc tttgatgaga tagacttaca tcttacaagt gtagtcatgc 79860

tacatcataa gttgacctca ttttctaaat tagtcagagg agcataactt ttttttctgt 79920

ctttcatttt ttttgctttg tttttgtttt tctagacagg gtttctctgt gtatcactgg 79980

ctgtcctgga actcactctg tagaccagac tggcctcaaa ctcagaaatc tgcctgcctc 80040

tgccttccaa gtgctgggat taaaggcatg ggccaccacc attgcccggg tcgtctgtct 80100

tttctaagta tgcttcctcc agtacatgta atgtttctcc ttttttccca tattttcctg 80160

ttctgggcag ctgttaggat ttacagattg cttgcttgcc tttggttatt tcctgttgcg 80220

ctgtaataaa actgccctct tttaataaac ataggctttg cttgacttca gaacctgttt 80280

tagatgtgtg tttccaaaaa ggttcccatc tgtattctta gaccccttat gtcttgcatg 80340

agcacattct tccccagttt gtatactaaa gatacttggt tgaacccatg tttgtttgga 80400

acatatttat ttcatttgga ttctgagttg ttcctttgct ttacctagtg gagcagagct 80460

tatgggaccc cagagtcttt tctggataag ctttcttcca tgaagcaagg cttctgggat 80520

tttataagat gttctaagga aaattcagtt taaaatgaga cgttatgttg atgtgataaa 80580

ggtacaaatt tatgacaact actttattgt tgccagttaa gaaccacatt gtaaacatac 80640
cccctagaat acatttaatt ccatagcact taactatatg tccctacaag taaggtatga 80700
cactcttctg tatataaagg catcctcata atctttatca tcagtgtttg gtaaacattt 80760
acctgttcaa attctgcttc atggtgagaa tttttattca gaaatataac aaactaatta 80820
aatccttttt tgacaatttt ctgtattatt taaatacatc atactaaaga ttttagtata 80880
ttaactaaat aaagattata atattattta aagtaagccc atcaatgaat aagatatata 80940
cgcacatagg gaccccttag tcacagtcta gtagactcag gcttctcatt gtttcctttt 81000
ccatcctttc cttttctagt tgatacctat gagtttgcag gtttgttgtt gaaggaagtt 81060
gctcctgaaa gactctgtcc aggccaacag tggccacaag agcagggcca gatgcaagtc 81120
tctcttccag ctctacagtg atagttaaga tggctgccat cttaccctcc acagctactg 81180
tcaaccatct gaactagcag ttccacatac atctccccta agcttgctta cattaagatc 81240
agcatctcct tttccctggt ctctagttag atctttccat attatatttc caactacaac 81300
ttttaaatgc tttctcaaaa ccttcaaaac attgtaaagc atattattaa caaacccagt 81360
ttgtcattgg tctaacttca ttttcttctg ctgctacttt tccagcaact agcttccact 81420
gcaagtaaaa ttttactatc accaacacat gagaggtaaa catgaagcca gaggagtctg 81480
tatgtgtatt ttgtgcaata agttggttca tggccattac accaaatgcc tggttgtact 81540
ggttgacaac tgtctttcta ccagatagac tgtttgccca ctgtgcgatc ttggacaaca 81600
tttaaatttt tgtgtttctt agctttttta catgtgacat gaggataaaa attactccta 81660
cttcatcaga tttaaataaa gtgttttaac ataataccta ccctataaca attcagttca 81720
atgatggtat catgaagaga aaacacatga ctttaattga attttagagt tctgatgtgt 81780
gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt gcatgtagat ataaaatatg 81840
aaccagagga ttacctggaa ataactggaa acagaatgac agaatgtatg atagattcgg 81900
aatgaccata gaattaatat ttgcaaataa atagtagaat gattccactg atcttttgga 81960
aactaaaaga gagaagaata tttcaaacag ctttcagtgt ggctttctgt gatgctctct 82020
gtctgctgct tctgctgctg caaaataaag cttccctcct ccccccttatg agcagtgaga 82080
gtgacacttc cctgtgggtg ttgggataac tatttagaat gcagcgagga attacattgc 82140
ttagaaacgt ggcaatagaa cttctcttct agggtccatt aagtcaccag acacaggtag 82200
tgggctgatc ttacagtaac caagcatgaa tctccccata tttagcaggc catgagccaa 82260
ctaggagacc agtatagaaa tctatagcca gcaagaaggc agagaacaat tgactcttgc 82320
ttgcttgtcc ccatcaattc atttacaaac agcccatata ccaaaggtgc tggagacact 82380
gtggaagagg gggtagaaag acaatgagac cagaggactc agtggtttgt tagcatatgg 82440
ggtcttccta ataaaatgca aaaggggtat ggagagggga gtgtgagtga atatgtgcat 82500
atgaccagat acagtgtatg aaattctcga agaattaaat tctcaatata actcccaact 82560

gcaggctaga gagttattct tagacccaca gataagtgta gcccttacca ttcatcatag 82620
aaagccacag ttaaaagcca tctaaattgc tttttccctc tatcatgttc cagaagctca 82680
gtgacatcat tattcccccc catttacaaa tataaattct atagtatttc catttttaa 82740
aatttcctgt tttcggtgtt tattgtttgt ttgcttgtat gggattcttg ttgttgttga 82800
ggcagaatct ctctacgtag ttctacctgt cttataacta cttgtgtaaa ccaggctgac 82860
ttcaaacaca cagagatctt cctggcctct gcctcctgaa tactgagatt atagatgtgc 82920
agtgccattt ccagctactt attttcaaaa ggctgttcat attttggtgc ctgtttctgt 82980
caaactccaa gtgagaagat ttggattaag aattatagcc cctttccatc tggtttgcac 83040
ctaattctga tcctaaaaca aagtaagctt cttttcaaat tatcttttat ttatcaaaac 83100
catggtttaa atttccagca tgaatataca atttgccatt taaaagtaat gtttgaaagt 83160
tgtgacagct gaccagagac aaggcctact gaaggtgagt tccagtgctg tggagggaga 83220
ggtcatgaat ggtcttgatg aagcttattg catgcaagat catcacaact tcagaaaaga 83280
ccttaagatg ccaactaact atgttattgc tggggttcag agagcctaaa atgtggtgtg 83340
gattgtattg gcaatgtaac taaagagcaa gaatgttcat attttatgtg attttaaagg 83400
tattaagtat caatgaacta attctttcaa gagcagagat aaatgaaaca ttttatcttt 83460
ctgttttcct tcttactctc taggaggctc atgttgaaga caagtctgaa taggaatgct 83520
tgtagaagca ctcattaact aggattaaaa tagctagcat ggattcacca cagaccttac 83580
agtaattggt ctgcaagcca ttcaatcctg ccaccataac attagtcctt tttaaatttt 83640
ttaaatttta tttatcaatt tcaatctgat tttacatagt gaggttttca aatttcaatg 83700
tctttggtcc ctgcaagctt tattgaaaga tatattcatc tatccagggc taatggtatt 83760
tataagcata actgtactca catggatttc ttaagaggaa caatacataa aatttacatt 83820
acaacaaatt ttgtgaagac tttatataag tgtgcctcag cttatagaaa gtatagatag 83880
aaagtttaat ggctatcaac atcatagact ttatgtttgt aaagttaaca agaaagtcta 83940
cactataaag cgataataga taattataca taaagtatgt aactaatacc aacttccttt 84000
aataaattgt agggaatttg gcagtaaaat tacagcaatg tgctaaccta gtaactcaat 84060
cactgtgtat cacctctaaa attcatttta aattcaacag tataatttct cataagcaat 84120
ggcttactca ctcattgaac aaatgttgag catttgtgga gacatagtac ttattctagc 84180
caggtatgtt gttatgtggg ctcattttgt atatacagaa tataagaaat tatctgagaa 84240
aagacagagt taaagaattc aacagtaatg cttgagagtg gttattgttt ggcaaggcac 84300
ccagctgtcc tttctagaga gtaacaactt cagcattggg atgagaaatt ctcacttctt 84360
tgtacctcac tgaccagggg tgagcagagc tgctcagaag ctctcttggt gcctaatacc 84420
ctccattctt gttagtgatc tgaaactctg gaatctccca cagttcccca ttcatagagc 84480
ctgtttatct aagtgaaaaa ataagaataa aaaagggtgc tgtaacaaat acacaagaaa 84540
tatgaacggc gttctcaccg tgttcttgta gaaatgtaat agaaatttaa gctgatgtta 84600

ggtgacaatt aaaatctggg aggtgttttg tacactatca cctctttggg atgagatctt 84660
atgaatgagt gatgtctagt agaaaagacc tgtaatcata ggttttgttg acccttttcc 84720
tagataatag acgctgtctt agaagcgcca ctaacctctg atattttcct ccaagacctc 84780
tgcaaacctg tattctgctt attgtacatt gccatggcaa tactgtctag tctgcccatc 84840
caggtcccta ttcatatgac tcacttggct gctccacagg agaggagtta gcttcaccta 84900
accagcacca ctgtagcttc caggaaggga catgggaaag aatagcctgc caactagcca 84960
gcaggcctgc tcgtcccctc tttacttcta atagcaactg cagggctata gccagcacag 85020
atcactgtta atattaaaag cttgtgaatc atggcaaatc atcgtctttt atggtcagaa 85080
agaatgatgc ctcttataag tcttttctgc ttaattatgg tagaaggttt ctacatgttc 85140
ctctaattat agcaaatata atcagactaa agcttggtag ctaatgctat acttatagga 85200
agtgtacaga acagtgaata atgtagatgt tgataatata cacatgctaa agtatcctct 85260
aagaaaagaa ggcagtgtcg caaatgaaag taatttaagt gaaagtgttc ctatgaagaa 85320
tcattgtcgt cacaagcctg gcaacatatg aatgtataat ccctgtggtt ccttctgtga 85380
taatatgaac tcgatcttct tacttccata aaggaatgac aagccaagct ataggaacaa 85440
gaaagcaagc aaggcacaca agtattgcct acttttctt ttcttttctt ttttttgtg 85500
attacactgt cagaactcag caaatgccta tatcccctgg tagcctttaa caggaacatt 85560
ttcattgtct ctgtcataaa acgactgtat gtcacatgga ttgagtgaaa ggaaggcact 85620
gagtaagaac tgtggattct gaatatcagg atatcctgtt tttacgccaa ggctctttgt 85680
taaccatctt gatcaatgat gccaaactag tctagattta ggctgtgaga taaacatttg 85740
ttcttgtata cagttccccg atcatggcca aaggacagca tgaacagagg tgaaggctct 85800
ggtttcccag acagtggtct cattatctct tttgcatgtt ttaagggtca ttcttaacta 85860
cagcccaaga ctcttgataa cagggctcac gtagaataat tgcaggacag gtttagtata 85920
gtatcatttt tcatcctcca atgctaatca gattgaaaat aaacctgtca ctgagcagaa 85980
gaaacaaggc caaggccatt tgctgcatgt gatcttttca cactggcttg ctgagtttca 86040
gatgattttt ctgtcacact ccaaagaaca tgagtccctg aagacttttg tgaaggctta 86100
gctattatca agccattgcc tcatggatga cttcataaat gtttgctttt gcatcaggta 86160
atggcataca acataatttg ttcctgactc cccactatac acacatatat ctcctttgac 86220
attagctaat aaaatgacag agagacgttg atttctgact gataatatca caagagctcc 86280
ccacacactg tctcctacaa atagagtgga atttacagtt ttataatgtc cttaacattt 86340
ttctttcaaa tgattatatt taaacatcta acatttatgc atacatttat agcaaagcat 86400
ttaatttcag caaccttcct gctcctaatt aagcagtcat ttactctata gaaataagga 86460
gtatatcaat ctcaaaggcc atctttcaac atgctcacac ttgacactct tgtttcattt 86520
acccatgttt tctgtcacag gttctgatgg attaatttct gatttctctc aaagcctacc 86580

aaaaattttt ttatcataaa atcatttaga gtggttattt ttaggaataa ttaatattgt 86640
atgcttgtga aaaatataga tatttaaaat aaaatattag agttaataaa ataaaataaa 86700
ataatcatat aatgtgtttg tttgataaaa ttaagcttaa acaatatttt atttattaaa 86760
tttacatatt ttcttatata tatttaatat atctgttcac agtgttctta taataatcat 86820
caaatacccc tctcagtggt catataaagc aaattttata aatttctcat ttctgttatt 86880
tatccaccaa taatgtatat gtcattgtcc ttctatataa cactcctgcc tagtggttat 86940
ataaagtatg ctttgtaaca ttttctctct tttaaaattt acacatcaat aattcatata 87000
ccgttgttcc tccatatttg taagtgaagg ctccagaccc tcttcagatg ccaatgattg 87060
aggtagcatc gtcatcactc tatatctata ggacatagtt ttagaacccc cttccaatgc 87120
ccatgagtca aatgttatca tccatttgta cctataagaa atggctccaa cacccccctt 87180
gagaggccag attgaaattg cttgaattca ttaaactgta taataaatac tttcaacttg 87240
tatcttccta caaacttaca ttatagtacc taatacaagg taaatgtcat gtaagtagtt 87300
gttataatgt atttttatgg acttttggtc tagcattgat atcaatctat ggcttcacaa 87360
atgaataaga ttctttgctt tgattaatta cagttgcatc ttttccttct gtgggtgtgt 87420
ttgctgtttt tggagggtac taggttgtag aacagtttgg taatattttt gtctgttaga 87480
ctggtatctc aagcaccagg ttctatatcc aatctgccct tgtgtactct ctatggcaag 87540
tctttatcca acagcaaacc actctgatat taaagaaagt ggtggctaaa tccacatact 87600
tgttaggtgc ttattagttt gaggagtcaa gtgacttcag aagtactgtt taattagtag 87660
ggttatgatt ggaaagggaa aagagagttc agaaatgatg ggaaacgagt gacacgtatt 87720
agattattag ataggaatta gaggaggagg atatgtgtgt gggaataatt gatgcaaagg 87780
ggagaaatgc catgtatgtg tggaggttag agctaggaga ctaaaaggag taggtaaaaa 87840
tacgtactca gatatcataa accaggtcag ccgctgatct ttgggagatg tggcaataag 87900
tgggaaaggt acagaaagaa ggaaaacacg gaaaagaaag tcggaaaagg aaagacgatg 87960
agggagataa ggaagacaag caggaggaga agaaaaggaa gagagggaga gaaagaatgc 88020
caatcagtaa caggtggaga gtgaaggggc ctgggttgaa ggctacttca tctactagac 88080
tgtaaagaca ggaaatagct gtgcagagag aagagctaag cagaaatagg aaatctctgc 88140
cagatatgtt actggtggag agatatggac aatataagga aatgaggcaa ctggcttgag 88200
tgctgttttt ttttttttt ttttttttt ttatcatcct agtggatctg gggcttaggc 88260
ttccttggtc ctggtctttg ctttatctct gttgagttta actggtccag ccgtcttttg 88320
tactcacatt tctccttgca tttggagttt cttgactatc ttttgtgaac tgtggatagt 88380
gtggatgcaa actcttccaa actgagttgc tgtgattttt tgtctttttt tttaattagg 88440
tattttcctc gtttacattt tcaatgctat cccaaaggtc ccccataccc acccccccca 88500
atcccctacc cacccactcc ccctttttgg ccctggcgtt cccctgtact ggggcatata 88560
aagtttgcaa gtccaatggg cctctctttg cagtgatgtc cgactaggcc atttttttatg 88620

atcaacagag gagtctggct ttgtggtgcc caaatgactg ttttgagctt gcctttcctc 88680
acggggttgc tgatgatggc ctgagcagca gtcacagcaa acttcctttt taatatctgt 88740
acaagcacag cttttgtaga ttctttgata ggaacctgca gtccactttt ctggagtgtg 88800
atagaaaagg caactgagtt ggaagctgtg ttgaatttag attcagctgg aaatccaggg 88860
taatggcaaa gaaggtgtgt gcatccaaca attgactttt gttagtatgt tgatcaagtc 88920
aatacagagg ctagagaagc tgagcatcat taaatacttc tatttacttg tttttcctaa 88980
gtaaggatat gttttagcat ggcttctaat caccattctg tcccagttta atatatttaa 89040
atatatatac ttacttggat ctcattaata tatttaaata tatatactta cttggatctc 89100
attgaattga aaaccacagt tctatatgat aactaattgt ttataattta accagataga 89160
tgaaatgaaa atatattatt aacatgtgta tataatactc agcttaaaat gaggggggga 89220
tgtctccatc aatgtcctcc cctcagatct tagggaaccc tgtggaataa aaagcagaaa 89280
gaaccagagg agctggagga caccaggaga acatgcattc tgaataaaaa aaccaggctc 89340
atgtgagatt gaataaccaa gcacagggcc aacatgggcc aacactaggt ccccggcata 89400
catatcacag cttccagttt agtgctttta tggttcttca agtgtgagaa tgagtgggtc 89460
ttgtgccttc tcctgggttc ttttcattct attggtttat attgtgcaac attgatatga 89520
tcatttttgt tttatgttat tatattttat ttgctatatt ttattattat ctcttagaag 89580
cctgttcttt tctaatgaaa gacaaaaggt ggctctagat aggaggagta gaggatgggg 89640
aaaatgtaat caggatagat tgtgtgagga aagaatctat tttcaacctt aaaaaagtgt 89700
gtcctgatat tttgtattta tatcataata atcatgtctg aaacaagcag tcaagttcta 89760
attagtttct tgtgctattg tatatttttg cttttgggac ccacatagac ttgtaaacag 89820
cgttactatt tttgaaattc accataactg caaactgaag ccgtcttcac tgccctggga 89880
gcctgactgg atgtctgagc cttatctttc caaaccctct actgctgtac aatatggtca 89940
cataggtgca tacacaagcc tgttggactc agtctccaag ccataaatag tctgttgaat 90000
ggcttaattg gagtctagaa atggagctgt tcacatatca tgcctctttc tttgaatccc 90060
attaccttcc ttatgagttg atgaacaaaa actgttaaca gttgaagtct tcaagatctt 90120
tgtatttaga ttcagtcagt gaataaaagt tcccagaaat taaaaaatgc cacccatgat 90180
tggcaactat ctttatttt gtcttaatcg tgtctataat tatctttaac aaatgactga 90240
ctgcatgtgg gcatttgttc ctgtagagga tatcaaacat ggttttgaaa catacaaaga 90300
tttggtgttt attgtgaaac atattaaaca cactttaaaa tcaaactgat tgcttaaatt 90360
taattttaga ttaaaaaatg acaattcttg agatcaaaaa aagcaattca ataactcgat 90420
taaatataaa ctttattcct aacagctatt cagctttata taaacttatc actgactgat 90480
gatgttatag caaatatgtt tttaaaatga atagttatgc tgtgttcatt ttctttttt 90540
tttgatgtgc actctgagct tagtgctttg tcttttacta gtttattaat ttatataaat 90600

attaatgcaa aataaatcat aataagatca tgtagtaata cattttttca agttattcta 90660

gatttttagt ttttttttaa attaggtatt ttcctcgttt acattttcaa tgctatccca 90720

aaggtccccc atacccaccc cctcaacccc ctacccaccc actgcccctt tttggccctg 90780

gcgttcccct gtactggggc atataaagtt tgcaagtcca atgggcctct ctttgcagtg 90840

atgaccgact aggccatctt ttgatacata tgcagctaaa gacaagagct cccgggtact 90900

ggttagttca tattgttgtt ccacctatag ggttgcagtt ccctttagct ccttgggtat 90960

tttctctagc tccttcatta ggggccgtgt gacccatcca atagctgact gtgatcatcc 91020

acttctgtgt ttgctaggcc ccggcatagt ctcacaagag agagctatat ctgggtccta 91080

tcagcaaaat cttgctagtg tatgcaatgg tgtcagcatt tggaagctga ttatgggatg 91140

gatccctgca tatggcaatc actagatggt ccatcctttc atcacagctc caaattttgt 91200

ctctgtaact ccttctatgg gtgttttgtt cccatttcta agaaagggta aaatgtccac 91260

actttggtct tcattcttct tgaatttcat gcgtttggca agttgtatct tatatcatgg 91320

gtatcctaag tttctgggct aatatccact tatcagtgag tacatattgt gtgagttcct 91380

ttgtgattgg gttacttcac tcaggatgat accctccagg tccatctatt tgcctaagaa 91440

tttcataaat tcattctttt taatagctga gtagtattcc attgtgtaaa tgtaccacat 91500

tttctgtatc cattcctctg ttgaggggca tctgggttct ttccagcttc tggctattat 91560

aaataaggct gctatgaaca tagtagagca tgtgttcttc ttaccggttg ggacatcttc 91620

tggatatatg cccaggagag gtattgcggg atcccataac cccattaaaa aatggggctc 91680

agagctgaac aaagaattct cacctgagga ataccgaatg gcagagaagc acttgaaaaa 91740

atgttcaaca tccttaatca tcagggaaat gcaaatcaaa acaacactga gattccactt 91800

cactccagtc agaatggcta agatcaaaaa ctcaggtggc agcagatgct ggcgaggatg 91860

tggagaaaga ggaacactcc tccattgttg gtgggattgc aagcttgtac aaccactctg 91920

gaaatcagtc tgtgttcatt ttctaaaagc ataattaatt tgacattaaa ggaaacatct 91980

agtgaccgaa tatatactcg gccatagcca ctgcctctca aagatttcct attttactta 92040

gagtaggtca atgaagatat aaaatggttc aagttaactg acattgcaag aaaaactatg 92100

accctagaat cctgtgcatt gaaaggatca tgcaatacag agatgagtgc caattcctac 92160

tgtcacatca gttgcaggtt tccattgttg aaagttaaat ggatgcttac atgtactcca 92220

tcatggagtt aaagacaatg acaatggcat gtctgtacta aaagaaagct ggttaggaac 92280

agatgaaatc ccgactgata gagtttcact agttattcag cttatgtgtg tcttcccttg 92340

tctgttcaac agctgaccta tagctgttta gtagtgagta ggggagggct gagcaatgag 92400

tgtgtacctg acaaggcact gaagtaggtt tgtggctttt cataatctta gacactatgt 92460

tggtatagag atggatctgt aactgctaat cattgactct ttccatccca cagctcattt 92520

ccttaccccg aacatcttca aacctagtag cttgagacta aacatgtttt ttttttttg 92580

ttttttttcat tgtaaatgct atctttgggc aacaagcctg cttcccagac cactagcgat 92640

ttattagcat ctatcagctt atctcataca cttgagaatg aataagtttg ctttgacctg 92700
cttggctgtc ctttttgaaa ccagctacct atgagttact cagagaggaa tcatgcaagt 92760
ctgttcccct tgctaatgac ctagtttctt gtgtctggag tattccagct ggagagtcct 92820
ctgtggatag cagtgcaatc cttcatgcca ggctggaaat aagcactgct tccttaatct 92880
ctcccatagt tacttacatc tattgtgatt ttgtgaatgc aggcacatac atatttttca 92940
aattattata aaataacagc atatgagata tgaatgtaat acagcccatt ttatatatag 93000
gttatacaga aagcctgcat ttcaatgtgg aacatacaga caaagaatca aaccatatca 93060
caatagcaga ctgtcaggga tggtcccatt agattgtagg attgacatat tcaaagcaga 93120
aaaattcctg tatgaagttc gaaaagattt gagaatcttg tgtcttaact tcatgaaact 93180
gcagtctgag ggtagatgga ttaggtcagt tatagcaaga ataaaatttt aattttgtat 93240
atacacttgt taatatttta tgaaaagaat tattattgtc tagcttaaga catattttac 93300
ttataaccag ttctaatcca gaaacaaact tggacaccaa tactgggatg gtagtggcca 93360
gcagggtccc aaaatgcatg tatatgcttt atacagatgt aaagctcttt tactactttc 93420
cttacgaatt tatacatgca tatgtttgtg aatgctaaat tttattggtg atggttgcta 93480
aaatgatttc cacttactaa taagaaacat atcactcttg agctaatgca tgcacttctt 93540
tttttaacct tcttagaata ctggaagaag aaattacttc aaagtgtaca taagggcttt 93600
caagtaattt tgtgactaga gagggtataa atggttggtt tatggcttca aaaccatcac 93660
tgaaagcaga tgtatagtat ggattccctt acctccatcc attctctaga tgatgagtat 93720
ctgggcttgt tccattgcct atgcttgaga agggagatga agggaggaag agagatactg 93780
agagaacaat ggagaaagaa atcaaatagc tcacgttttc tctcatatac agaatctaga 93840
tttaaatata tattgctcta agtatgacag gaaaatacaa gtgaagcatt ggggaagaag 93900
agaggtgtcc gtatgaagga gagaagggtt aaaagaggac aatggggaga atatgatcaa 93960
gtacagtgat gtaaacctag ggaaatactg taaggaaatc aatcacttca catgctcact 94020
taaatattta atttaaaagt gaacttggaa tttaccaatt gaaatagact cagaattccc 94080
acattctcaa agcatttgct ttcatgggtt gcttcaagta gcaagacatc tttttaaagt 94140
gttgaggaca aggctgtaga ttttgctgta taaaaagatg ctgaaagaaa gaaagaaaga 94200
aagaaagaaa gaaagaaaga aagaaagaaa gaagaaaaga aggaaggaag gaaggaatta 94260
agaaaaaaga agctccgttt acaccagtat tacatgactt tatttacaaa tggatactat 94320
tctgtctttc tgctggcagc tttactgtct gcttgctcaa tcttctactg atctccttgc 94380
tagactttag acactttatc catttgatgt aatcttctca gaagaccaag gctgcagtta 94440
cagtccacat tcaatatctt attcttttcc tttattttga acataagtaa cacttgtctc 94500
taagtaacaa ggtcaaggtt tttgctttat ttctgcctcc ctcaaaacat ttctcttcct 94560
ctctacaagt ttcaaactta ttcacaaagg aatattgcaa tacggatgct attgtccgcg 94620

tttcttcctg gaacaagtgt taattgatct ctttgggtct atgtgtagag aggagttggg 94680
acctaggaaa ggtattatct ggggagttcc cttgtccttg gaacagaaca aagagatgct 94740
gcctacaaag gctttacctc cccagggctt ctctgtggct agactcaatt acagctggag 94800
aagctgtggc ctatgtgctc ccaaggccat ttgacaagat agtcagctgt ttattcttgt 94860
ttcttccctt gtacctgtac tcctcagaaa aacattcttc gaataagtga cacatttaat 94920
ctgcaatctt caaagggcat agtgtgttca aacacaaaaa taaatgagac aatgcaattt 94980
ctgaaatcga cttacagcga tatcccatgg gagtgtactc caaaccatcc acccaggctc 95040
attgctcttc taggcaagag ccattacaga gagcacagct ggaaacctgg aaaacagctt 95100
tccctagcat ttgtggttgt agagcttttc ttacctactt aggtgacatt atagtactta 95160
cagagtctat aaatagacta agatattttt tgaggttaaa acagtttaaa ttgtacagat 95220
tattagaact aaaaaaggaa aatgattcca ttacacttga ccttagttta cgggttgctc 95280
tccttagact agatgaagca tttttcaaaa gctaaaaggc tgtggcgatt gcacagaagc 95340
aaaaacaaca catatcatag acgttatctg attatttaat ggacaggtgg gaagattgaa 95400
acactgcttc ataagacctg aagtgggtta gccagtggga agactgataa gcattatcta 95460
gggttgaacc tgtgctttct actgcagaat actacaagtt acttataaaa ctgtgaggtg 95520
gtagggctct aatcagtcaa atagttatca gggcaatgcc tgagtcagtg aagttcttgc 95580
cattcacaag acaaatacct ggctcctgta cagccagcct atgctagtca gagtcccagg 95640
ctaaacagac accttgtttc aaaaaacaaa ttgtacatat cctgaaaaaa tgacactcaa 95700
ggttgccctg tggcctgcac ccccaccacc cccagacata catgtgcaca catataaata 95760
aaagagaaaa aaatagtaaa attgagggca tgctttggtt ccctagttct aatgtccatt 95820
ttctcatgaa actgaatgct gacaaaactt gacaaaagcc aagaatcaca cagggtctca 95880
gaacaacctc tcaaaaagca tgcctaactc aagtgtgacc taaataggct tcttaagtac 95940
ctgcatctta cctatatcta acatacaaag ttgcccgttg ataaccactg tggaagaagt 96000
gccagtcttt agagatgcaa tctgagagtg acagtataat gatccattgt gttatctgtt 96060
tttgttcttc taaatattta atagaagttt gtaagaagat gtattagttt ctgagcaatg 96120
tgaccaaatt taaagccaaa tctagaggac actttcgatt tcagaataag atgtcaaatt 96180
aaaaaaaaat ttcatatgta aagcaatatt tgtgtgtgtg tgtgtctgta tacaatcaat 96240
tataaagttc ccacatgtct gtaatagctt tactgtagta ttagaaagtg tgtaatgcac 96300
actgaatgaa ttcaatggta ctttctatta ttttgaaagt aaaagtattt ccccatcttc 96360
ttgaaatttc agaccataag gtgaagactg gtaagtggtt tctgccatac tggcttgctg 96420
tcccctaagc atgaagccac acatgaatgt gctctgagag gccctggggt ctggtagctc 96480
agaatgaagc cttgcttcct aatcatcctc tgtaatggag agctctgggt taatcatctt 96540
cagagtaagt gtaatccttg atgacaccta ctgagactga gctaaagttc tgtaaaggga 96600
acttaaaaaa aaaggggcca ttccacgcta gtgccggcta ctctctgacc ccggcagtct 96660

cgctacctcc atggctagcc ccatgtagca accttacatc tcgtggttct ctttttgcag 96720
attgtaaccc gataaaataa aaactctaga ggcttgtgat ttattaatca gatttatatt 96780
agtaaattct caacccacaa aatgcctgca caatgaactc aaaactcaat taatataaac 96840
acaagctaca cccctagatg aggcacatga accctactta ttatttaatc acctatgtaa 96900
gaaatcccca atacttaccg ctcccaggac tgtttgcttc tggctcctct tcctctccta 96960
ctggttccat cttatctctt cctctccccc ccccttttt ttctcttggt ctctctgtcc 97020
tcatctctaa aatcctcagc ccactttcct tgtctactgc ccagtcacag gctctcacct 97080
tatcttgtaa ctgtcctcac ctgcatatag acagcagcct tcaaagttct cagtgtgttt 97140
ctgacaagga ctaaatcttc agaaatgtgt caatgtaagt cctctgccct acagccccct 97200
ttattgtcaa gattctgtag atttaaacct tgcccacata actcatcttc tggcaatttc 97260
tgagaaactg tgccttctgg taatgtcaga agctacaccc ataaagtctc atcaatatga 97320
ctgcctaaac atgaactgaa caatgacaat gaaatgctaa actggaagga aaagagccca 97380
tgggatctca actctacaca aagaactata ggcagctaaa gaaatctgat aatgagagaa 97440
atagtcttcc ccagggaaga gcacaacaac tggctatcca ataccagaca gctctgaaaa 97500
tgcacacata agtaacatta taaagactga agaatattat atttagaaat atgtatagta 97560
tatatataca tgtacatatg tgtatgtaac aacaatgaat gaaaaaggtg ccattagttt 97620
gaaaaggagc aagagggggt atatgggagg ggttagaggg aagaaaggga agtgataaat 97680
gatgtaatta tattaaaatc tcaaaacaga aaagaacaac tcaatatcaa caatgcgcat 97740
gtttttccta tgatataaga aaatcatata tgcttaggac agtagttcct tttaaaattc 97800
agccacaaat cactgagagt ttccagttta aaaacagtta aattgtctca catatttatg 97860
ctttccattt tcaattttca gtttaaaatt gagaaaaact tataaaagtt gcagataatg 97920
gtatgtgatt tccttatttt taagatcttc atcaccatat tggaataaag gcttttatgt 97980
actccagaac tgtccatcat ggcactctat gtggaagggt acttgcatta gcacataggg 98040
aagaaataat tccattagaa ccaaggttga ctctcatctg tagaatctaa gaatagggaa 98100
caccattggg ttactcttct catatccctt ttcttcttgg ggcatatctc ccagccttag 98160
cacaaaggac ttaggagagt aggtgaggga agggagtcca agtttatcag tcaagtaaca 98220
cattactata acataggcag cctctgaatg tctctgggaa atatgcttta atgctcatct 98280
taccatcaca ttgttatccc aagagaagcc cttgggctag atgtgggcca gtctccagtt 98340
gatcacttca gttctcagct cactcctcat cttgctgtgc tttctcacct gacagtggtg 98400
atacagtgtg aagacaattt tagccacttg atgacagcca gcacctggtt cacatgtcta 98460
tgctagttca aatgaatcag ccagaaagta tattagaatt catcaaagat gtgtgaattt 98520
caaaatgacc tatttcttta aaatgtgtaa aagtacaatt gtgaaggctc attctagaag 98580
attctttcct ttgcttctcc ctttttcctt aaatctctga gtgagaaaat gtagctgaga 98640

agcaggcttt ttatcttaat atctccccaa ctctgttaag aaataaaaga ctaaaaataa 98700
attactttaa gattcagagc agcaacctgt ccccagtgaa gctctcttaa ttaatgtggt 98760
gacctgtgta gagaaaaggg acaactgcag agtctctcag taattatcca accaaagctt 98820
cagataatta cagtagggag gtttttgaga cacaggacat cctgaaaact tgaacttcct 98880
tgttgactta ggccttctat tcattcatgt tggggtttgt aattgacaaa gtcagagcat 98940
atcagaaact cacacattac taaagtctct gtgtttgtac ttgacaaaga cagcacatat 99000
cagaaattca aacactacta aagtctctgt gcgagttctc aacagaaaat aaagtgcctc 99060
ataaaatggt ggaaattagg ggattagcta aaggtaaaat tgagaagtgc tcgtgcagta 99120
ctgagtaatg tgggccagat aaaagatata ttttatatag actataagat atattagaca 99180
gcaaattgag aactgttgtc aaagattgat accagacaac aatatgttgt attcataaag 99240
agtattcttc agcactccaa taatgggcag tgttggaaaa tctttccaag gtgctgtatt 99300
tatgaatgtt caaactactc attagctaaa tttccttttg atttaaactc ataattggta 99360
atcaaaataa atttcaattt ccccctttgc ggctttaaaa aagtggaatc tcagtggcct 99420
tcaggtgact cactggactc gtacattcag tcaatctgaa accacataaa tggatttggt 99480
ttcattaaaa ccatttcgcc ccagtggctt tctaagccta taaaaaaacc tgctctcagt 99540
gacccagtct aacttaaatc acagcagtgc tttctcaaaa caataaatgt tatcttttcc 99600
atgggagtca agatgagaag ctaaaatcac cttagagacc aagctatctc atagatgtcc 99660
tgtccttcaa taaagaaaga atatttgctt tgcactgagt ggccacagtg ttcattttag 99720
ccacagacca tgcatgttct ttttggcaca gctatgtagt aggctacaag atggaaggct 99780
tatattgact gttctcagta ctctcctcat gtctcctggg ttgctctcct gctttggtag 99840
ccttttctca caggtgcctt tgctgcacag tactgtgtgt tcattaagca agagagtcat 99900
tgtttcttcc agaaagagaa ggcctttaaa agaaagggtc tgtggcaaca atggcctgta 99960
acatgcaaag cagatgaaat gataagttaa agagtggttt gggagcaatc cgtagcagct 100020
ccatttcaaa tacagtcaca aatggttgca tgtaatgaac aataacgctc ctcaactagt 100080
tgcagcagat tgctgactca tccggtacat attttgatgg tatatgaaga aaataaaggg 100140
aaattctaaa ttttctaggt gtgctgttga tatgcagcat attgggtact cagtcaaatt 100200
gtaatttatc agtgcaatgg acgtggcctc attcattaat cagtagcagt ggattgtatt 100260
atgtatgtct tttggtagaa atatgactta gtttactgct gtggttttca cacttgttcc 100320
agtgaatcgt atagatacat tttatgtgtc taagtcatat aatccagcag aggcaggtgg 100380
atatctgagt tcaaggccag ccttgtttac agagtgaatt ctaggatagc cagggttaag 100440
cagagaaacc ctgtcttaaa taatcaacca accaacaaac aagatatttc tcccccaact 100500
ctatatatcc tcccaaggag tctttgatgg gggcagcagc tagcacaaga ggtggtatgc 100560
actgcccctc cacactgctg ggctttcaca cccatcacat ttgtgctacc tacatcatga 100620
tcaatctgca cagattgaat gttcaagtac tagacacaaa attatgattt aaggaatgaa 100680

taataagcaa gaagagccac agtttcaggg gaaaatgcca gcattcaaca aatgtcacta 100740
ggaaatagct cagaattgag agttatcaaa agcaagtgat agaaccaata tgcattctat 100800
ctatttgtga aaatctcaag gagtaaaaat gaaatttaat taaaaaatta aagtagcaag 100860
aatgtatcaa attcggtaag tcgaatagta agtttctcta gagagataat acaaaaaaaa 100920
accaatattt gctcagaaca aataaataaa aacagatcca tttgtgtttc atttcaaaaa 100980
gcaactctca atttttaaag ttcattgtgt aaaatcactt ttgtgtaagt caattttatg 101040
ttcaaatgat atttttttctt ttagatcttt gttggttttc ttttacatcc aatattttaa 101100
tacaggaatt taattcatga atttgatagg attatatttt gcatatgtgt tacacatgtg 101160
tttaacttgt catttagtag ctgtgacatt gtagggcacc tgactccttt atgtcccacc 101220
tagctgaaca tgctccttgg agaattgttg ctgttacttt ggacagtatt ttttcattat 101280
aaatacaaac agtctgtatg ttatttttgtt cttaaaagat taataatttt tactgtcttt 101340
aatttttaga gaaaaatgaa gacatcaggc tgactgacta acccctaaat ggcaaggccc 101400
aggttctatt tgttatgctc cacttcttcc tcaacaatgc ccaggtccca ttagttacac 101460
attgcctctc tcagcagttg gctaatttcc ttctaattta tttttcagac tccattatag 101520
aacttttcca attacagcta catctcagca cttaagaccc atgctttggt ttaacatttg 101580
cacggctgca gactgagctt gaaggccatc actgtcactc cagagataga gatgtactct 101640
caagttttac tactctaaat aagataggtt gaattcctgc ttcacagggt tacttggtga 101700
ataaatgaat ccccctttct cttttgcttt cttattctgg atcttatcag tttcaatgag 101760
aaaagaaagg gtgtgtcatc tttggactct cccatcaggg tagaggacta ttgcttatac 101820
attagccaga gatttatgtt tgttggctca gctgcagact tatttctctg aactttaacc 101880
acctgtgacc ctggaactta cttcctattg taaccatcaa tttccagctc caatgaatgc 101940
tctttgcatg caggcagctc ctgccagtga taacagccct ctgtaggaca ccaagactag 102000
gacccatagc taccatggct agtgttgtag ccttctgaaa cagttcttcg ttactattct 102060
cctcatctct aaagcactgt gtcatagttc caggattgtt tgggttgtca gctgttgaca 102120
gcatccagga tacaaggtct aagtcatctt catgcctggg ggcttcctgg aacttgcagt 102180
ggaggtaggt gtgcagctta ttgtatctag ctccttacag ccttcatggt cttcatgacc 102240
tctgctcccc gtcatctctt ctcagctgtt ctctggagct tttcagcctc tctcttcact 102300
gctgtgcagc tgttctcctt tcttttgttg ccatatcagc tactctactg atggctaatt 102360
gactgacagt cggtcactca gacagggtac cagagaaatt ctagcagctg tcagttagcg 102420
aggtacactc cacaccaacc cattccatag tttatttaaa agaaaagcat gcgtcaaaat 102480
agtgttcagg ataaaggctt atcataaata ttactgatgt tttaatggta tttagcaatt 102540
tctaaatctg cccagtgcct cagttacagt ggcctccttc tcttatttgt ctttaaaaca 102600
cacttatagg ggctggggac aaaaaaaccc acacacttat atatctgata tctttaatgc 102660

atcatttatg gtaggtttga agaagcatct ccgacaatgt ataccagaca ggatttatgt 102720
gccctgaaat gtctttttt ctatagctag taacagtccc tgtcttgatg atcaatcaaa 102780
cacaaattcc aataactggt caatgaaaac atacatataa gtaacattat atggagtcaa 102840
caggctatgt tagaaatgta tatctatata caaatacatg tgtatgtgtg acataatgat 102900
gaaaatatga cctcaaattt gaagtagaac agagggtggt atatggaagg atttagagga 102960
agaaagggag aaatataatt aaattataat ctcaaaaaat attaaaaaat gctaaaaaac 103020
caatcagttc atccccttc tttctaacac ttatccagat tcacacagtc ttggaatcca 103080
cagatctcac atttctgcat attttaaaca aggcaccaat tgctttcgct tgggtctgcc 103140
ttcatgagga tattagcaca atgatcagcc ttgaaaggta gaagtagttt ctcctcctga 103200
gtcaaagaca gatgtgagtg tgtagcctta gtcagatgct cggtttatag tcattcctta 103260
taatttaaaa aaaatctgga ttggtgagat ggctcagtgg ttaagaacac tggctgttct 103320
tccagaggac cctgttcagt tcgcagcatt cacatggcag ctgacaactg tctgtaactc 103380
catcccagag ggtttggctc cctcacatag acatttgagc aggcaaaaca tcaatgcaca 103440
tgaaaataaa tcttaaaaga tgctatttcc ttaagttcca aagttctctt ctatcatgaa 103500
cccagtgact gggagttttg gtgtctttaa actttcctgt gagaattggg acgttccctg 103560
tggctttggg atttccatgt gagatctgtg ctctggctcc tgctattttc ataaacagtc 103620
atgtaacttg tctcaaaatt ttgtattttg tttcaacttc tatagtattg atcttgacaa 103680
atgtgataat ttacaagtag tacaaaacca aactgtggac aacttttaag taatcattgc 103740
caattcaaat gaagtaaatt atagctactc catcttcatt tttaatatgc aacctgtcca 103800
acataaggtt tcgctgtcat gtgcacctga tcctcatgtc ctgcagccat tctgcaggtc 103860
actgccagac tgatttacct gaaaccaatt ttcaccttat agctgtcagt caaagcatgg 103920
tggttattaa atgtgcaagc cctgttggca agtgttcccg gtactcatct acctccaatt 103980
cccattagcc cagggacagt atcacttttc ttctgccata ttttgtccat gatatatccc 104040
gtgtttagtt ttcccagcta gcctcaaaat attgagattc aatactgatg tttctgggag 104100
taatcgctcc tcattttgaa tgtgttattt ttacgtctca gtgccctaga ccaaggttat 104160
atagtcttct gttttttcag atctcacatt ttatttaatt ttctagaatt gatagtttga 104220
ggtgaaactt atgtttcact atatactttg caattattga cctcattcac agtatataca 104280
aatgtttata ctgctaattc ctccttcttt tgaagaacca atatgctgat attagtagga 104340
acactgtaga tttgttggca ttaagcatag atctcatcaa ggagttagaa tgtagagaaa 104400
caacattttc tattcaattt catgaaagtt ttttagtttt tctgctacat aaaaatacaa 104460
tgttcttatg acttgatcaa ttcttcatat aaaataactt aaagtctaca ttttcagaag 104520
tcttataacc tcttaaccca caaaatatat catggttttc aaatctggct actatgcggc 104580
gagttgctgt cataagcatt aatactgtgt gataattaat tgtcagcttt aagacagtaa 104640
ccttactttc tgtgctgtgc ttatgtcaca gttgtgtctg tccaatataa gcaacataca 104700

gtttcgtaga gagtacatta ggtcttctgg gagtttgaag acagagactc aaagaaaaag 104760
tcatgctttt cagagagttc ttaacctgct ttacttaaag agaaccagtg actgaaatat 104820
taagagctgt tttcttggca gcatcataag aatcaataaa agactactca ttctccagaa 104880
ccaaggctgg aaagttgtcc caccaagtgc tttgttgtca cctcagctct ggctgctgtg 104940
ggtaagcctg caagtgaagg atcctggcag ctgcacttta gtttctgctc tgtgcctttg 105000
tctcacacca ggtgcttcct acccatggct agggcttcag cacctgttcc tacagtctac 105060
acctaaattc ctgggcagct gagaggtggg gatatggaat atgtgtccca ctttgacaaa 105120
gacaaacatt gaggttttgt agagtctcaa atgaaactaa ttggtgaaag cagacaaaaa 105180
gtttctatta taaaaagata aaaaatgaag cctattctga agaaaaactt agctacaact 105240
tgataatata aaaataataa gtactcatta attaaataat atgtgtttat taaaatacgt 105300
aaacaaatta gatgctatcc gagtacatag ggtctcagta aatattctgt tatataacta 105360
tgtactggtg attactggct actctatgtc accgtgttta atatctctaa tgtcacaggt 105420
accatttgcc acatggcaag tcagttacca aatattttgt ttagagcagg gaggggtata 105480
ctttatccag agtttccaat caacccgtca tatgtgcagt tttgaggaag ggactctgac 105540
acaaggtgct tggagtggtt ttgtaaggaa gcttttattt gttccataaa gtgataaagc 105600
tggccatttt ttacagatgt acttctctgt cacatacgca tgcactctca ccacagaaga 105660
gtgcctgcag ctactgctca cattcataaa gatgctcaca ttgtcttatt acagatactc 105720
tgtctgtggg aaactgagaa ttcctgttga acattcataa gtagatctaa aggaaccatg 105780
ctgaaggaag atccattgag aatgttgagc agagctgtgg attgacttat tgagagtttt 105840
ataatgtgtg taatccagaa ataatggatg ctttagaagt aattaaaaga ctataaataa 105900
acacttagtg ccttaatata aagaggagaa agacaacatt gagctcatca gctgtgatga 105960
cgaagtaatc tttctcttta aacgctatgt gaataagtaa gcaaactaca cttgatgact 106020
agatacagca tctgcctcat ggacttaatg gatcatgatg ccttattata ataatcaaag 106080
tggacataaa tgcaggggct taagagggat taccaccttc agtgctcagc aaagctttgc 106140
tccttgtcag caggggagaa gaaagcactc aagtgatgat aattcaaact attctagttt 106200
gaagttccta gtggcagaac ctccaataaa atggcttact acaaattcag aagataacat 106260
tgtctgagca gctctcttca ttagaagcaa tgtgttcatt gccccctaaa taaaaaggtc 106320
catttttgta cttggcaaaa catcaggcac acacacacac acacacacac acacacacac 106380
acacacacac acactcaact cccttagctg tctgagatta ctcctcttga tgcaaatagt 106440
aacaagcttt aattaatacc agaggtagtt gaggtactca gacattaatt atacctcatt 106500
catggaatct ggcttaatgt tttattatga aaggtttatt tacaagaagt gtcacaaaat 106560
acaacataat aattaggagg gcagactttg gaaccaggtg tagtctgttc tgcagtgggt 106620
aaaatgggaa tcataatggc agccttctct aaggactagt ttgagttcag gtaaagttta 106680

taccgtcttt ggaatgtgtc cagaccccaa taaagcacca aggagagtct ggtttgttgt 106740
tattattgtt gtttttaaac tgtggtttat ttataagtaa gatgggcaag aaatcatttg 106800
gtagcatttg cttttaatta ccttaatttt ttttaaaatt taacttagtg tattaattta 106860
cttagtttta aaatcaagcc tcactctata tttcatcctg acttgaaact tactaggtaa 106920
aaatgggtgg cctcaagtcc ttggcattcc tgcttgagtc tccaagggca gtattacagg 106980
catgaagcac catgacaggt tttgccttgc atatcaggtt tctttataat ctagtttaga 107040
gttccccttt atcactaatt tgtccaaaca gatttgaagt tcccagaaat actctaagtt 107100
tagaaaagtg accactggca cgatgtgaca atatttaact gtgacagtat tttcaaatcc 107160
ttctgaagtg tattgctgtg atctgcgtgg ccctacttcc tcagtgctga tgatcccatg 107220
gagacactga tagcacagtc actttaatag gctggggccc agtgaggaac ttttccttct 107280
agatggtaga cctggtagac ttcacttggc ctcagctcac attcttgctt cagctttctt 107340
aaagcctttt aatcactcag ataagaaaga catagcctcc ttgtgtacta taaagaacat 107400
atctaataaa aaaaaagagt tcttggtttc atatctattg atttctaagc cttcagtcta 107460
tgtcagaacc tcacaactct tgtcattttt ttggatacaa gcatcttgtt ttgcctgaag 107520
catttttcat cagtcttata gtaagataga ctatccacca tttctttctt tgtttaaagc 107580
aagcacccgt gccatggttt gctaaagtgt gaatgttccc tctttttttc cttcaaattc 107640
ttcaccattc cgtaaggtct tctaaaatga aagcatcaat cctgttttat agatggccaa 107700
agtctacctt ttttattcag ttactgattt taggacttcc tttcaaagac cattgcatta 107760
atgaacagga tgcagccttt aaaagtccaa tctatacatg tttaaagtaa tagtaaaaag 107820
aacctcatgt atacatgcaa tcatacaaaa atcatacatt ccctcaacag tcctaaagca 107880
ctggaaatgc aggttattct caggtttcca ttgtgtgtga gtatttccac cagaacatat 107940
tcaaataaca ggaataaaag ctggcagtgg ttgcctcgct gtgtaggctc attagatgag 108000
tcagctaatg acagggttgt gcattcaaaa gggcaggcac tctgccactt accaaagaga 108060
atgaggatta agatagcatg ttacctcctg aaaactagag ttaaaaatgc ttttgcctag 108120
atacctactt agtgtgccaa gtgttttata caactgggtt tttgataatt gattaaaacc 108180
ctcttaaaag attcttcaag tatatttaat atattatctt gctttttcct tgtctcccaa 108240
aacttttaaa agaatgaggt aaaggagtgt ttatctattc tctgtactgt tctgtccctc 108300
taagagacta aatcactgtg ccagagggga ggagaacctg agcaatcaga ctttcaaagc 108360
agaacacagg cacatgttca atgagaagag gagtacacgt catttccatg taggactaga 108420
ttctccatga atgccactga actgtataaa aatttataca cataaaaatt tattgtattc 108480
acaatctgaa aagtgacccg agaagagtgt gttttcggca ttgcttatca gtgttcccta 108540
actttgctat tccagtgtga cacatgcaat tgatggcata gcaatttcct gttcactgag 108600
gaaatcttgc tagatgtaat gaagctggat gtgccataat aaatgagggc agataagtca 108660
ctctgatcag caagtagcct ttcagatgag ctaggaaact cctatcttca gtcagcttgt 108720

ggctagtcat tttgttgtgg ttgtggttgt taaaatcagg ctgtagttat ggttttgttt 108780
tatggtttta aaaactcaac tactgaaccc tttagtttta atatatatat taatatatat 108840
atactctgta tcaccatgta tatgtatatg aatatagggt gcctggtata gggtttgcct 108900
gttagtagat atatataggt taaagataat ctggaagtag ttttttcccag gttccacaca 108960
ggcagagtca tttggagaca tggaactgag agtagattag cttgtctaat cagcaagctc 109020
caaggatcta cttgtcctta atgcccatca ttaacctgcc gcccactctc cgctgccaca 109080
tatatacaca tatcctatcc agagaataca agcacacgct actctacttg gttgctcatg 109140
catagaaagg ggcatttttc atttttcaag ggctctctcc ccgcctaatg ttttcatata 109200
gaacaaagcc cctccaagtt gtaaattgtt tatgatggtg aatatctagg ccagggcaaa 109260
aattggcaac agaaaaggct gaatacatgg taaatatctt gtttgtttgt ttgatttttg 109320
agacagggtt tctctgtata gccctggctg ttctggaact cactttgtag accaggctgg 109380
actcgaactc agaaatccgc ctgcctctgc ctcccgagtg ctgggattaa aggcatgcac 109440
caccatgccc ggcatatggt aaatatctta cacttatgtt ctaacaagtg ttttttttt 109500
atttctgcca agttcacttt tttaatgtgt ccatataata catggctatt tctcttagta 109560
aaatgtgctt tgtaatatat atatatgcac ttccctacgt gggaaatgaa gtatatggtg 109620
tgtacacttt ttctattaaa tttacctaac cgttttacac acacaaacac acacacacac 109680
acacacacac acacacacac acacacacat cttctaatta ctctctccct aacaccatta 109740
ttttttcttc atccctatta agaccttact cccaccattg ctactagtcc cttccccaga 109800
ttcatggatt ttggttttgt gactcatttg gtttagtcag acctttttct gtgaactttc 109860
gattgagact gcacatcagt acatgatgtg atcttcagtg ggtataaaac tgaaggcaat 109920
gatttaccct tgccccaaat catcagtagt aagtagtata gcagtgacag ggtcatctga 109980
gtccttctat ctatttctga catttgacag gctcatattt gtgtatatac aaaatattta 110040
tgcatatatt tgcatatatt aggcatatat ttatgcatat acagagcaag cacctgtagc 110100
ttctataagt tcatgattga aattcctatg atttgccatg gaacactatt tcttcctttt 110160
ggcccttaca atctttctgc tgccccttct tcactaccta ctggtcctta gaagagacag 110220
gataagtgta gtgtttatac ctgagcacta atactctgcc ttttgtaacc tggaaccacg 110280
tgtctctaca tttaccattg ttcactgaaa ggagaggttt atcttattaa ggctgaaagt 110340
agcttttgtt ccatgctact gtgacagaca acaaagagga atggcaagaa cctgtactgg 110400
ttgaggggtt tacttgtgtc tttgtgatga acagtcctgg aatttgggtt ttggtataat 110460
aaaatgactt ccaggacaaa ttttgttcag cctgtacttt ttttttaaa tagatctatg 110520
ttatttttta tttaaaatgg aattctggga tgtattttat attagagata cttaacacag 110580
taagatgtat gcttaaataa accttgccct atcatgtcaa agttctttta aatgtctgcc 110640
ttttttctta tggctgttgt tttctccatc tttatgatct attgagcaaa tgtgttactg 110700

tatttattaa tgggttgatt aatattacct gacattataa caaaatactg gtctcatcca 110760
aaacatatgt ttagcataag agcagtggga tcagatcttg acctgctgct ttcagtgttg 110820
taagtgtaga tatcaggtac ttgtttagcc cttacatttg aaaaaatacc atatactctt 110880
ccagctgtct ttcagaaacc cagttttcct ttagctcctt gtaaattttg aagcagagat 110940
caccttttat tttcctgtat ttatattggt agatagaaca ttgttatttt cttatattaa 111000
atgtcactgt ggaggtgaca aatgattgct gacagtggat agtaattacc agggtcaatt 111060
gtaaattttg gtcagttctg atcttaaatt ctgtttacgt gaataatctt tgttttctgt 111120
attgcaacat tgccaccaag aattatcctt tacaaaatac tttgttgtaa acatcagtga 111180
agattatgat gcaagctatg catggggagg taagatgtat actatacatg ggagccaagt 111240
agcatgcaag ttagggtaca gtctatgcat taggggccag gaagtttcaa gacatttatg 111300
agggttgggt aggatggaaa ctgtacatga aaagaccagg tagcatgaaa gctatatttt 111360
aggaactaga aacatgcaag atatatgtgg aggtggcagg taggatataa actatgcatt 111420
tggagtccag gcagaatgga aacatgttag aaggattcaa gctatgcatt aagaaccaga 111480
cagaattcaa gtgataagga gggggtatgg aggggggggt agtgggatac aagctgtgca 111540
ttaaatgcaa tgtgacctgc tggctatgca ttaggggcta ggtaggatgc aggatataca 111600
gtaaggacca agtagcatgc attaaagtcc aggtagtata cgagtataca agctacacaa 111660
aagaagctag gtggtattgc agcacagatc tctctgaaaa agaggagata catatttgat 111720
atccttgata cagaattttg acgatcttct ctgcaggaaa aatggtggat gcgagcctgt 111780
cttttgtatg gccactaaat ctgtaccaac accttgacct gtactagatc ctctatcttt 111840
gcccctttgac aggttttgcc cacatgcagg ttaccagtta gtgtttttttt gtttgtttgt 111900
ttgtttggtt ggtttttttt tgtttcgttt tataggtcaa gacacttgct tttttattta 111960
gacagcatct ctcttctttt gagtatgtat ttatatttta aatgatacag ttctctgttc 112020
acagataaac ttatggacac atccgtggtt tcacttttat tatagaaatt atggatcctt 112080
tatgatttta tggaaccctt gcctacaaat taagctgtga atttttaaaa aaatctttga 112140
taaatttgta gctggagctg tgagtccctc catgtgtact ctttggatgg tggtttagtc 112200
cctgggagct ctgggggtac tggttgcttc atatcgttgt tcctcctata gggctgcaaa 112260
tcctgtctgc tccttgggtc ctttctctag ctcctccatt ggggaccctg tgctcagtcc 112320
aatggttgac tgagagcatc cacctctgta tttgtcaggc actggcagag cttctcagga 112380
gacagctata tcaggctcct gtcagcaagc acttgttggc atccacaata gtgtctggct 112440
ttggtgactg tatgtgggat ggatctccag gtggagcagt ctctggatgg ccttcccttc 112500
tggtcatcaa taggaggaga ggccgttggt cctgtgaggg ctcaatgccc cattgtaggg 112560
gaatgccagg accaggaatt gggagtggat gggttgatga gcaggggga gggagagagg 112620
atatggggtt ttcagcaggg aaaccaagaa agggtagata cttgaaatgt aaataaagaa 112680
aatatctaat aaaaatatta agcacacata caaaaaaaac tttgataaag ataactcctc 112740

aagatttgtg gaacacggtg tttcctaaat gaatgccagg agagtacaat ctttagcaca 112800
ggaaaatgta gtactaagaa acacaaacac gtatactatg tttttaaaaa gaaaccaaca 112860
attattgatt tacaacttgg atgattttat gattaaaatt gacatgaagg gattttaatt 112920
gattgtattt catggtaaac ccaggaagga atttctaagc aacattcagc attatctgga 112980
tgaactctga agggcaaaca cagttatccc cttatacaca tggacaccca cagcctgtga 113040
catcctcttc tactaatgta ggaatatcag agttaggagc ccccagggtt ggcctttcat 113100
attgtcttat ccagtttata acataaatct cacaagttac attggaaaat gcactgaaga 113160
ggtggtttac tatatttcct tcctatgagc tgtataaaaa tcacgtaaac atcagtgaga 113220
ggggtccatt gtgtcacttg ctcctcccag ttatatacaa atgaaaagat ctctttgctg 113280
tcttttctca acacagttag ttgatgctca ggagtggtgg taacatgccc agagtcacaa 113340
aagataactt aggctggaat tgtaatgtgc atcctatgat caagttctgg ggctgaacta 113400
ccacacaacc aaaacctgga ttcttatact accatgtaaa atactgttac tctacatttt 113460
gaagtgaggt gatttgggga cagtttaaga cttatttaac ttataaacaa attggcctct 113520
ctgggtttgt aaccagagat tgttgatatc tatacagcat gataggatga tctgtaaggt 113580
gccctgccaa gctaccgaaa gcatgacctt cagagtctga ccttgcctta gtgtcaactc 113640
ttatttcttc cctctgccca cctgtccatt atgcctatga taaaagcaga gggagatagc 113700
atttacagtg agtatattgc ccacagaagc tgagcatcct ttgatctcat tgaaatagac 113760
catttagcct ctagttgctc tttgagtatt tgctgaactc tgtcattcaa taattacttt 113820
ggtggaacaa atggaaaaga acaaaagatc tttgatgaag gatacaaaaa agctccatca 113880
tgtcaagctg aatgctaggg tgtctgcatt gtggagagat aatctgaaat tttgtccaat 113940
catatctttg ttttggtttt ggttttggtt ttacttcaag tacatataat ttcaaacttc 114000
agctttccaa agagaactat ttctttggca gcatttaaga atgaattatt ggggctcaaa 114060
atatagctca ctgtttaaga acatatgtat ttttcttcca gaggactcta gtttataatc 114120
tagcacctat atggagaatc acaaggatct atagctccgg ttccagggaa tgtgatgccc 114180
tcattattca ccacacatgc acatagtcca cacacatact cacaaataaa agaaaagaaa 114240
acaatgaatt ataaaacaca tgtactttac cttttaaaat ttaggaaaaa taaataataa 114300
tgataatttg tcaatatttg ttttactttt ttggaacatt tttacttttt cattgaaatg 114360
ctatgtgggt tctgtctaca aatgacatcc tgttaaacat tacaccaaaa ataagctatc 114420
cttattagag aattggcaaa tgatttcaga aaagttttga atacattact gttatttgat 114480
tcatcattac ccattgacta caaaccattg ttactatagc attgcgctta tggagagaac 114540
ttatggactt tagctttggc aacttccagt gtagttaatt acctgtgcaa aatatttgta 114600
ctctttagat tggtaaccca tgcatgcaca atgtttttc cagtggtttg gtacacttag 114660
aatccatcaa taatacagaa gaatgcactt ctgataacac ttcgtgcagc accttgaaga 114720

taaggtgtct ttttcaagct ggttttcaga agttaaaaca ctctcttatt gtgctttctc 114780
ttccctctct gtagggtgag gaggggtacc cacaggaagg aatcctggaa gacatgcctg 114840
tggatcctgg cagtgaggct tatgaaatgc cttcagaggt aaatgcctgt ataaagaaaa 114900
ctaagcaaaa cactttaggt gtttaatttg gaacacatac catcaaaacc ctgccactat 114960
cagatctctc tcacattatg gttggcatag ttcaatcaag aaaatatttt agagcaaatg 115020
attttaatct ttgtgggaga gggtaaggga tatagtaggt caaaattaaa acattctaga 115080
acaagagact ggtagtaaca aaggcatatg gaaatgtctg agtaacaacg ggcagttatg 115140
aatcatggtt agaaaacaga aaaatgacag attaaggctg aagacataac taaggtttta 115200
gacaaactgt agagccccaa gttaccatca tttaagttta tttttacatt tggaaaaaga 115260
agagtttgat gataggttta gtttaacagc acaatcctaa ttagagttaa ttttgaggaa 115320
ggctatcaaa ttcagttaca ttgggtcatt actgtcatga atgttatctg gattttgtcc 115380
aggaggcttg ggctttcatg tgaaagatcc ttcatggaag caattcatga aggtggagtg 115440
ttctaatggg ggagagaaag gcgaaagatg agctctggag gaggcttcat gcagcttacc 115500
taggtgtgca cagctcacac tgcagagcaa aggagagaat ccagagaccc tgccaattca 115560
cactgcagga ggagagcaca gatcaaatga tatacctaga attgggccta ataatctaac 115620
ggtgatgtcc tctataactt acagttgata cgtatgaaaa agccaataaa tgtcaatgac 115680
agataagttc caaacactgc tctgaggatc aattttatct gattgaaatg atgagccctc 115740
ccccactgtg aagcagacag ttgatatctg tcacttcact gacaaggcat gctgttatta 115800
ttttcttttc ctgatattag gaaggctacc aagactatga gcctgaagcc taagaatgtc 115860
attgcaccca atctcctaag atctgccggc tgctcttcca tggcgtacaa gtgctcagtt 115920
ccaatgtgcc cagtcatgac cttttctcaa agctgtacag tgtgtttcaa agtcttccat 115980
cagcagtgat cggcgtcctg tacctgcccc tcagcatccc ggtgctcccc tctcactaca 116040
gtgaaaacct ggtagcaggg tcttgtgtgc tgtggatatt gttgtggctt cacacttaaa 116100
ttgttagaag aaacttaaaa cacctaagtg actaccactt atttctaaat cttcatcgtt 116160
ttctttttgt tgctgttctt aagaagttgt gatttgctcc aagagtttta ggtgtcctga 116220
atgactcttt ctgtctaaga atgatgtgtt gtgaaatttg ttaatatata ttttaaaatt 116280
atgtgagcat gagactatgc acctataaat attaatttat gaattttaca gttttgtgat 116340
gtgttttatt aacttgtgtt tgtatataaa tggtggaaaa taaaataaaa tattatccat 116400
tgcaaaatct ttcctggttc cttttacttt agtaacaaaa tcatgcatat cgggaacatg 116460
aacatttaat gacaactgac acagtgaact ggaatgaaaa gttgcaacat gtcttaagga 116520
accgagggga tttagagatg gaacagcagg aaggattctc cagtgagatt gaacacagcc 116580
agctttatct acagttctgc tcagagctgt ggctgcactt gaggaaacac ttcattggaa 116640
ctaaaacgtg tgagggatag tgaactttta catattcata agacacatta gcatatcaga 116700
ggcaggccat tgaagaacct taatttggaa tttatggcat gtatatgtgt gtgtgtgtgt 116760

gtgtgtgtgt gtgtgtattt gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt 116820
ataaaagaac ccaggaaata ccttaaaact cctcagggac cccaggcagt gggctatgta 116880
tatgatacct tagcaggtac gcaaaggtaa aagcaaaatg gaacaaaagg caatgtcaat 116940
ttgtgaataa cagggatttg ggaatatctt ttaggaaaag gtttctttag ataggcttaa 117000
ttacccatga atgaagacaa aaacttgact gactgagaaa ttactcagtt catcttccta 117060
attattcaga agaaaaccag caaagccaca gtgaaaacca cttgcagaga gtacactttc 117120
tgtaacgaat attgttgctc ctgtacggtc atgagtaatt gatgtgtgtt ggacagtgac 117180
aggaacagaa gaggagtggg agaccatgaa gatagcacca ctggaacttc cttctgccca 117240
gttgagaaaa tactatggag tgttcagttg catgtgtgct ttgaccctgg aaataggtga 117300
taactcctta tctaatttat gtttccttga agctgatgaa ggattcatta ttaaggtagc 117360
ccagatggtg tttagggtac attatatatt taccgaaagt accctcttct taaaaaggaa 117420
agatacaaac agaacacaat caaattgatg acaatgacaa tgagcagtgt aggactggag 117480
gcagactgtg cttgaccttg agaactgcta ttgatgggta tggtattgta aagctcttct 117540
tctcttaagc agtgccacgc tgtcaatgtg cgaacagtta atgagttttt gctgtttagc 117600
tttcttttat cttaagagtg tttcactcac cacctaaagg aagctcctta gttcacacaa 117660
gccctggtag gagtccagcc cttgagaagt gcagtctgag gatgcctctt gactagagct 117720
ttagctttcc agatttaaat cccaagtcag agctgtttga tttgtaatga gtccacgaag 117780
gactttaaag aaagccgtcc acagcaggct tgggccccac aattggcagc actacacaat 117840
caaatgtaca ctttggaatt tcaacttttg ccttcttttc aaaagtctct tctccagatt 117900
gtaagatgca agtatacttc ataatttgta tagctatttg tggcataatg gaatttatac 117960
atagggtgtc atacaactag tacacttata atctattcag agccaggagg cttatggttt 118020
gagacactgt ctcaggaaac atattcagaa tgtttctgcc tctaattcct ggaggagtaa 118080
tttaaaagca ttgtgatttt atgtgccata tgattgctaa gtgtgtctct tattctaata 118140
actgatctat cgatatctat ctatctatct atcatctatc tatctatcta tctatctatc 118200
tatctatcaa tcatctatct atctatctat ctatctatct atctatctat atcatctatc 118260
atctatcgat ctatctctca tccgtggttt gcacatagct cccagtgcta agaatttctt 118320
aactcttgtt ctgatgaaat gcacacaatt tggcttctga agctggctga tgtataagag 118380
agaaaggact atatttacct caatcagcac aaggatggca gtagatatct ctgtaagaaa 118440
gaagagcaaa atgaagagct aacttagcta accaaagttt ggcatgatag atgaggagtt 118500
aggcattaag ggctaaaaat agtagaaaac tatattttta tgtttgaatt ttgtagaaga 118560
ataaacagtt ttatagaact atggttaact tcaaatgtca tatcacctaa tggaaatata 118620
ctgagagggc tgacaaatcc agtttgtatt tttcttgctt ctgttagtat tctttccttc 118680
ggagatgggt gagtattact tgagggtctt cagagatgga aaggtcagag agaaggagga 118740

aggtaggggg gagagagaga gagagaaaga gagagag 118777

<210> 11
<211> 4047
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(4047)
<223> LOCUS Drpla 4047 bp mRNA linear R
OD 16-MAY-2002
DEFINITION Mus musculus dentatorubral pallidoluysian atrophy (Dr
pla), mRNA.
ACCESSION XM_132846

<300>
<308> XM_132846
<309> 2002-05-16
<313> (1)..(4047)

<400> 11
cacgacagaa taaagactcg atgtcaatga ggagtggacg gaagaaagag gcccccgggc 60
cccgggaaga gctgagatca aggggccggg cctcccctgg aggggtcagc acatccagca 120
gtgatggcaa agctgagaag tccaggcaga cagccaagaa ggcccggata gaggagccct 180
ctgccccaaa ggccagcaag cagggccgga gcgaggagat ctcagagagt gagagcgagg 240
agaccagtgc gcccaaaaag accaaaaccg agcaggagct ccctcgcccg cagtctccct 300
cggatctgga cagcttggat gggcgcagca ttaacgatga cggcagcagc gaccctagag 360
atatagacca ggacaaccga agcacatccc ccagcatcta cagcccgggc agcgtggaaa 420
atgactcgga ctcatcctct ggcctgtccc agggccccgc ccgccctac cacccacctc 480
cactcttccc tccttccct ccaccaccag acagcactcc ccgacagcca gagtctggct 540
ttgaacctca tccttctgtg ccgcctactg gatatcatgc tccgatggag ccccccacat 600
cgagattatt ccagggccca ccacctggag ctcctcccac acacccacag ctctaccctg 660
ggaatgctag tggaggtgtt ttatctggac cccccatggg tcccaaaggg ggagccgctg 720
cctcctcagt gggtgccct agcggaggca agcaacaccc cccacccact accccaattc 780
caatatcaag ttctggggcc agtggtgctc ctccagcaaa gccacccagt gctccagtgg 840
gtggtgggag cttaccttct gcaccaccac cagcttcttt cccccatgtg acaccaaacc 900
tgcctcctcc acctgccctg agacccctca acaatgcctc agcctctcct cctggcatgg 960
gggctcagcc aatccctggg catctgccct ctccccatgc catggggcag ggcatgagtg 1020
gacttcctcc tggcccagag aagggtccaa ccctggcccc ttctccccac cctttgcccc 1080
cagcttcttc ctctgccccc gggcctccaa tgcgatatcc atattcatcc tccagtagct 1140
ctgccgcagc ctcttctagt tcctcctcct cctctgcctc ccagtaccct gcttcccagg 1200
ccctgcccag ttatcctcat tccttccccc caccaactag tatgtctgtc tctaatcagc 1260
cacccaagta cacccagcct tctctcccat cccaagctgt gtggagccag ggtccacctc 1320

ctcctcctcc ctatggccgc ctcttggcca acaacaacac ccatccaggc cctttccctc 1380

ctactggggg tcaatctaca gcccacccag cagcccctac acatcaccat caccagcagc 1440

agccacagca acaacatcat catggaaact ctgggccccc tccacccgga gcgtatcctc 1500

accctctaga gagcagtaac tcccatcatg cacaccctta caacatgtca ccctccctgg 1560

ggtctttaag gccctacccc ccagggccag cacacctgcc tccacctcat ggccaggtgt 1620

cctataacca agcaggtccc aatggtcccc cagtttcttc ttccaactct tccgggtctt 1680

cctctcaagc ctcctattca tgttcacacc cctcttcatc ccagggcccc caaggagcat 1740

cctacccctt cccaccagtc cctccagtca ccacctcctc agctaccctt tccactgtca 1800

tcgccaccgt ggcttcctcg ccagcaggct acaaaacagc ttcgccacct gggccccctc 1860

agtacagcaa gagagcccca tccccagggt cctacaagac agccaccccg cctggataca 1920

aaccggggtc accaccctcc ttcagaacag ggaccccacc cggctatcga ggcacctctc 1980

cgccagcagg cccagggacc ttcaaaccag gttcaccgac cgtggggccg gggcccctgc 2040

cacccgcggg gccttcaagt ttgtcatctc tgcctccgcc acctgcggcc ccgactacag 2100

ggccgccccc gaccgccacg cagatcaaac aggagccggc ggaagagtat gaacctcccg 2160

agagtccggt gcctccggcc cgcagccccc cgccccctcc caaggtggtg gacgtgccca 2220

gccatgccag ccagtcagcc aggttcaata agcacttgga ccgcggcttc aactcgtgcg 2280

cgcgcagcga cctgtacttc gtgccgctgg agggctccaa gctggccaag aagcgcgcgg 2340

acctggtgga gaaagtgcgg cgcgaggccg agcagcgcgc gcgcgaggag aaagagcgcg 2400

agcgcgagcg ggaacgcgaa aaggagcgcg agcgcgagaa agagcgcgag ctggagcgca 2460

gtgtgaaact ggcccaggag ggccgtgctc cagtggagtg cccatctctg ggtccagtgc 2520

cccatcggcc tccctttgag cctggcagcg ctgtggctac agtgcccccc tacctgggtc 2580

ctgatactcc ggccttgcgc actctcagtg aatacgcccg acctcatgtc atgtctcctg 2640

gcaatcgcaa ccacccattc tatgtgccct tgggggcagt ggacccgggg cttctgggtt 2700

acaatgtccc agccctgtac agcagcgacc cagctgcccg agaacgggag cgggaagccc 2760

gtgaacgtga cctccgtgac cggctcaagc ctggctttga ggtgaaacct agtgagctgg 2820

aacccctaca tggggttccc gggccaggcc tggatccctt cccccgacac gggggcctgg 2880

ctctacagcc cgggccacct ggcctgcatc ctttcccttt tcatccgagc ctggggcccc 2940

tggaacgaga acggctagcg ctggcagctg ggccagcctt gcgtcctgac atgtcttatg 3000

ctgagcggtt ggcagctgaa aggcagcatg cagaaagggt ggcagccctg ggcaatgatc 3060

cactagcccg gctgcagatg ctcaacgtga ctccccatca ccaccagcac tcccacatcc 3120

actctcacct tcacctgcac cagcaggatg ctatccacgc agcctctgcc tcggtgcacc 3180

ctctcattga ccccctggcc tcagggtctc accttacccg gatcccctac ccagctggga 3240

ccctccccaa ccccccttctt cctcaccctc tgcacgagaa cgaagttctt cgtcaccagc 3300

ttttgctgc cccttaccgg gacctgccgg cctccctttc tgctccaatg tcagcggctc 3360

atcagctgca ggccatgcac gcgcagtcag ctgagctgca gcgcttggcg ctggaacagc 3420

agcagtggct acatgctcat cacccattgc acagcgtgcc actacctgcc caggaagact 3480

actacagtca cctgaagaag gagagtgaca agccgctgta gagctgcgat ccagacagca 3540

cccactgctc cttcatccag accttggagg accaccccaa ccttttgacc ccaccccacc 3600

cccagccgag gagagggtgc tgcccgcttg cagagctcct gcagctgggt agagggaggg 3660

agggaagaag ggacagacaa ggtcagggcc cggggttgtg tgcagaggtg ggaagtggca 3720

agggtggggg cagaaagtgc acagtatctt ggaccaggtc cctcctccta tcccctgctt 3780

ttcttctcct ctatgccgaa tccttggtgg ccactgcccc tcccctaacc cattggtgtg 3840

atttttttca tctgttagat gtggctgttt tgcgtagcat tgtgtgctgc cccgccccat 3900

ccctgtgtgt gcacccccctc cctcggcgat atgtgccctt acccgtccca cattaataat 3960

ttatatatat aaatatctat atgatgctct ttaaaaaaca tcctgaccaa aaccaaccaa 4020

acaaaaacat cctcacagtt ccccagg 4047

<210> 12
<211> 10033
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(10033)
<223> LOCUS MMU24233 10033 bp mRNA linear R
OD 18-JUL-1995
DEFINITION Mus musculus huntingtin (Hd) mRNA, complete cds.
ACCESSION U24233

<300>
<308> U24233
<309> 1995-07-18
<313> (1)..(10033)

<400> 12
ggctgagcgc cttggttccg cttctgcctg ccgcgcagag ccccattcat tgccttgctg 60

ctaagtggcg ccgcgtagtg ccagtaggct ccaagtcttc agggtctgtc ccatcgggca 120

ggaagccgtc atggcaaccc tggaaaagct gatgaaggct ttcgagtcgc tcaagtcgtt 180

tcagcagcaa cagcagcagc agccaccgcc gcaggcgccg ccgccaccgc cgccgcctcc 240

gcctcaaccc cctcagccgc cgcctcaggg gcagccgccg ccgccaccac cgccgctgcc 300

aggtccggca gaggaaccgc tgcaccgacc aaagaaggaa ctctcagcca ccaagaaaga 360

ccgtgtgaat cattgtctaa caatatgtga aaacattgtg gcacagtctc tcagaaattc 420

tccagaattt cagaaactct tgggcatcgc tatggaactg tttctgctgt gcagtaacga 480

tgcggagtca gatgtcagaa tggtggctga tgagtgcctc aacaaagtca tcaaagcttt 540

gatggattct aatcttccaa ggctacagtt agaactctat aaggaaatta aaaagaatgg 600

tgctcctcga agtttgcgtg ctgccctgtg gaggtttgct gagctggctc acctggttcg 660

acctcagaag tgcaggcctt acctggtgaa tcttcttcca tgcctgaccc gaacaagcaa 720

aagaccggag gaatccgttc aggagacctt ggctgcagct gttcctaaaa ttatggcttc 780

ttttggcaat ttcgcaaatg acaatgaaat taaggttctg ttgaaagctt tcatagcaaa 840

tctgaagtca agctctccca ctgtgcggcg gacagcagcc ggctcagccg tgagcatctg 900

ccaacattct aggaggacac agtacttcta caactggctc cttaatgtcc tcctaggtct 960

gctggttccc atggaagaag agcactccac tctcctgatc ctcggtgtgt tgctcacatt 1020

gaggtgtcta gtgcccttgc tccagcagca ggtcaaggac acaagtctaa aaggcagctt 1080

tggggtgaca cggaaagaaa tggaagtctc tccttctaca gagcagcttg tccaggttta 1140

tgaactgact ttgcatcata ctcagcacca agaccacaat gtggtgacag gggcactgga 1200

gctcctgcag cagctcttcc gtacccctcc acctgaactc ctgcaagcac tgaccacacc 1260

aggagggctt gggcagctca ctctggttca agaagaggcc cggggccgag gccgcagcgg 1320

gagcatcgtg gagcttttag ctggaggggg ttcctcgtgc agccctgtcc tctcaagaaa 1380

gcagaaaggc aaagtgctct taggagagga agaagccttg gaagatgact cggagtccag 1440

gtcagatgtc agcagctcag cctttgcagc ctctgtgaag agtgagattg gtggagagct 1500

cgctgcttct tcaggtgttt ccactcctgg ttctgttggt cacgacatca tcactgagca 1560

gcctagatcc cagcacacac ttcaagcaga ctctgtggat ttgtccggct gtgacctgac 1620

cagtgctgct actgatgggg atgaggagga catcttgagc cacagctcca gccagttcag 1680

tgctgtccca tccgaccctg ccatggacct gaatgatggg acccaggcct cctcacccat 1740

cagtgacagt tctcagacca ccactgaagg acctgattca gctgtgactc cttcggacag 1800

ttctgaaatt gtgttagatg gtgccgatag ccagtattta ggcatgcaga taggacagcc 1860

acaggaggac gatgaggagg gagctgcagg tgttctttct ggtgaagtct cagatgtttt 1920

cagaaactct tctctggccc ttcaacaggc acacttgttg gaaagaatgg gccatagcag 1980

gcagccttcc gacagcagta tagataagta tgtaacaaga gatgaggttg ctgaagccag 2040

tgatccagaa agcaagcctt gccgaatcaa aggtgacata ggacagccta atgatgatga 2100

ttctgctcct ctggtacatt gtgtccgtct tttatctgct tccttttttgt taactggtga 2160

aaagaaagca ctggttccag acagagacgt gagagtcagt gtgaaggccc tggccctcag 2220

ctgcattggt gcggctgtgg cccttcatcc agagtcgttc ttcagcagac tgtacaaagt 2280

acctcttaat accacggaaa gtactgagga acagtatgtt tctgacatct tgaactacat 2340

cgatcatgga gacccacagg tccgaggagc tactgccatt ctctgtggga cccttgtcta 2400

ctccatcctc agtaggtccc gtctccgtgt tggtgactgg ctgggcaaca tcagaaccct 2460

gacaggaaat acattttctc tggtggactg cattccttta ctgcagaaaa cgttgaagga 2520

tgaatcttct gttacttgca agttggcttg tacagctgtg aggcactgtg tcctgagtct 2580

ttgcagcagc agctacagtg acttgggatt acaactgctt attgatatgc tgcctctgaa 2640

gaacagctcc tactggctgg tgaggaccga actgctggac actctggcag agattgactt 2700
caggctcgtg agtttttgg aggcaaaagc agaaagttta caccgagggg ctcatcatta 2760
tacagggttt ctaaaactac aagaacgagt actcaataat gtggtcattt atttgcttgg 2820
agatgaagac cccagggttc gacatgttgc tgcaacatca ttaacaaggc ttgtcccaaa 2880
gctgttttac aagtgtgacc aaggacaagc tgatccagtt gtggctgtag cgagggatca 2940
gagcagtgtc tacctgaagc tcctcatgca tgagacccag ccaccatcac acttttctgt 3000
cagcaccatc accagaatct atagaggcta tagcttactg ccaagtataa cagatgtcac 3060
catggaaaac aatctctcaa gagttgttgc cgcagtttct catgaactca ttacgtcaac 3120
aacacgggca ctcacatttg gatgctgtga agccttgtgt cttctctcag cagcctttcc 3180
agtttgcact tggagtttag gatggcactg tggagtgccc ccactgagtg cctctgatga 3240
gtccaggaag agctgcactg ttgggatggc ctccatgatt ctcaccttgc tttcatcagc 3300
ttggttccca ctggatctct cagcccatca ggatgccttg attttggctg gaaacttgct 3360
agcagcgagt gcccccaagt ctctgagaag ttcatggacc tctgaagaag aagccaactc 3420
agcagccacc agacaggagg aaatctggcc tgctctgggg gatcggactc tagtgccctt 3480
ggtggagcag cttttctccc acctgctgaa ggtgatcaat atctgtgctc atgtcttgga 3540
cgatgtgact cctggaccag caatcaaggc agccttgcct tctctaacaa acccccccttc 3600
tctaagtcct attcgacgga aagggaagga gaaagaacct ggagaacaag cttctactcc 3660
aatgagtccc aagaaagttg gtgaggccag tgcagcctct cgacaatcag acacctcagg 3720
acctgtcaca gcaagtaaat catcctcact ggggagtttc taccatctcc cctcctacct 3780
caaactgcat gatgtcctga aagccactca cgccaactat aaggtcacct tagatcttca 3840
gaacagcact gaaaagtttg gggggttcct gcgctctgcc ttggacgtcc tttctcagat 3900
tctagagctg gcgacactgc aggacattgg aaagtgtgtt gaagaggtcc ttggatacct 3960
gaaatcctgc tttagtcgag aaccaatgat ggcaactgtc tgtgtgcagc agctattgaa 4020
gactctcttt gggacaaact tagcctcaca gtttgatggc ttatcttcca accccagcaa 4080
gtctcagtgc cgagctcagc gccttggctc ttcaagtgtg aggcccggct tatatcacta 4140
ctgcttcatg gcaccataca cgcacttcac acaggccttg gctgacgcaa gcctgaggaa 4200
catggtgcag gcggagcagg agcgtgatgc ctcggggtgg tttgatgtac tccagaaagt 4260
gtctgcccaa ttgaagacga acctaacaag cgtcacaaag aaccgtgcag ataagaatgc 4320
tattcataat cacattaggt tatttgagcc tcttgttata aaagcattga agcagtacac 4380
cacgacaaca tctgtacaat tgcagaagca ggttttggat ttgctggcac agctggttca 4440
gctacgggtc aattactgtc tactggattc agaccaggtg ttcatcgggt ttgtgctgaa 4500
gcagtttgag tacattgaag tgggccagtt cagggaatca gaggcaatta ttccaaatat 4560
atttttcttc ctggtattac tgtcttatga gcgctaccat tcaaaacaga tcattggaat 4620

tcctaaaatc atccagctgt gtgatggcat catggccagt ggaaggaagg ccgttacaca 4680

tgctatacct gctctgcagc ccattgtcca tgacctcttt gtgttacgag gaacaaataa 4740

agctgatgca gggaaagagc ttgagacaca gaaggaggtg gtggtctcca tgctgttacg 4800

actcatccag taccatcagg tgctggagat gttcatcctt gtcctacagc agtgccacaa 4860

ggagaatgag gacaagtgga aacggctctc tcggcaggtc gcagacatca tcctgcccat 4920

gttggccaag cagcagatgc atattgactc tcatgaagcc cttggagtgt taaatacctt 4980

gtttgagatt ttggctcctt cctccctacg tcctgtggac atgcttttgc ggagtatgtt 5040

catcactcca agcacaatgg catctgtaag cactgtgcag ctgtggatat ctggaatcct 5100

cgccattctg agggttctca tttcccagtc aaccgaggac attgttcttt gtcgtattca 5160

ggagctctcc ttctctccac acttgctctc ctgtccagtg attaacaggt taaggggtgg 5220

aggcggtaat gtaacactag gagaatgcag cgaagggaaa caaaagagtt tgccagaaga 5280

tacattctca aggtttcttt tacagctggt tggtattctt ctagaagaca tcgttacaaa 5340

acagctcaaa gtggacatga gtgaacagca gcatacgttc tactgccaag agctaggcac 5400

actgctcatg tgtctgatcc acatattcaa atctggaatg ttccggagaa tcacagcagc 5460

tgccactaga ctcttcacca gtgatggctg tgaaggcagc ttctatactc tagagagcct 5520

gaatgcacgg gtccgatcca tggtgcccac gcacccagcc ctggtactgc tctggtgtca 5580

gatcctactt ctcatcaacc acactgacca ccggtggtgg gcagaggtgc agcagacacc 5640

caagagacac agtctgtcct gcacgaagtc acttaacccc cagaagtctg gcgaagagga 5700

ggattctggc tcggcagctc agctgggaat gtgcaataga gaaatagtgc gaagaggggc 5760

ccttattctc ttctgtgatt atgtctgtca gaatctccat gactcagaac acttaacatg 5820

gctcattgtg aatcacattc aagatctgat cagcttgtct catgagcctc cagtacaaga 5880

ctttattagt gccattcatc gtaattctgc agctagtggt ctttttatcc aggcaattca 5940

gtctcgctgt gaaaatcttt caacgccaac cactctgaag aaaacacttc agtgcttgga 6000

aggcatccat ctcagccagt ctggtgctgt gctcacacta tatgtggaca ggctcctggg 6060

cacccccttc cgtgcgctgg ctcgcatggt cgacaccctg gcctgtcgcc gggtagaaat 6120

gcttttggct gcaaatttac agagcagcat ggcccagttg ccagaggagg aactaaacag 6180

aatccaagaa cacctccaga acagtgggct tgcacaaaga caccaaaggc tctattcact 6240

gctggacaga ttccgactct ctactgtgca ggactcactt agcccttgc ccccagtcac 6300

ttcccaccca ctggatgggg atgggcacac atctctggaa acagtgagtc cagacaaaga 6360

ctggtacctc cagcttgtca gatcccagtg ttggaccaga tcagattctg cactgctgga 6420

aggtgcagag ctggtcaacc gtatccctgc tgaagatatg aatgacttca tgatgagctc 6480

ggagttcaac ctaagccttt tggctccctg tttaagcctt ggcatgagcg agattgctaa 6540

tggccaaaag agtcccctct ttgaagcagc ccgtggggtg attctgaacc gggtgaccag 6600

tgttgttcag cagcttcctg ctgtccatca agtcttccag cccttcctgc ctatagagcc 6660

cacggcctac tggaacaagt tgaatgatct gcttggtgat accacatcat accagtctct 6720
gaccatactt gcccgtgccc tggcacagta cctggtggtg ctctccaaag tgcctgctca 6780
tttgcacctt cctcctgaga aggaggggga cacggtgaag tttgtggtaa tgacagttga 6840
ggccctgtca tggcatttga tccatgagca gatcccactg agtctggacc tccaagccgg 6900
gctagactgc tgctgcctgg cactacaggt gcctggcctc tgggggtgc tgtcctcccc 6960
agagtacgtg actcatgcct gctccctcat ccattgtgtg cgattcatcc tggaagccat 7020
tgcagtacaa cctggagacc agcttctcgg tcctgaaagc aggtcacata ctccaagagc 7080
tgtcagaaag gaggaagtag actcagatat acaaaacctc agtcatgtca cttcggcctg 7140
cgagatggtg gcagacatgg tggaatccct gcagtcagtg ctggccttgg gccacaagag 7200
gaacagcacc ctgccttcat ttctcacagc tgtgctgaag aacattgtta tcagtctggc 7260
ccgactcccc ctagttaaca gctatactcg tgtgcctcct ctggtatgga aactcgggtg 7320
gtcacccaag cctggagggg attttggcac agtgtttcct gagatccctg tagagttcct 7380
ccaggagaag gagatcctca aggagttcat ctaccgcatc aacaccctag ggtggaccaa 7440
tcgtacccag ttcgaagaaa cttgggccac cctccttggt gtcctggtga ctcagcccct 7500
ggtgatggaa caggaagaga gcccaccaga ggaagacaca gaaagaaccc agatccatgt 7560
cctggctgtg caggccatca cctctctagt gctcagtgca atgaccgtgc ctgtggctgg 7620
caatccagct gtaagctgct tggagcaaca gccccggaac aagccactga aggctctcga 7680
taccagattt ggaagaaagc tgagcatgat cagagggatt gtagaacaag aaatccaaga 7740
gatggtttcc cagagagaga atactgccac tcaccattct caccaggcgt gggatcctgt 7800
cccttctctg ttaccagcta ctacaggtgc tcttatcagc catgacaagc tgctgctgca 7860
gatcaaccca gagcgggagc caggcaacat gagctacaag ctgggccagg tgtccataca 7920
ctccgtgtgg ctgggaaata acatcacacc cctgagagag gaggaatggg atgaggaaga 7980
agaggaagaa agtgatgtcc ctgcaccaac gtcaccacct gtgtctccag tcaattccag 8040
aaaacaccgt gccggggttg atattcactc ctgttcgcag tttctgcttg aattgtacag 8100
ccgatggatc ctgccatcca gtgcagccag aaggaccccc gtcatcctga tcagtgaagt 8160
ggttcgatct cttcttgtag tgtcagactt attcaccgaa cgtacccagt ttgaaatgat 8220
gtatctgacg ctgacagaac tacggagagt gcacccttca gaagatgaga tcctcattca 8280
gtacctggtg cctgccacct gtaaggcagc tgctgtcctt ggaatggaca aaactgtggc 8340
agagccagtc agccgcctac tggagagcac actgaggagc agccacctgc ccagccagat 8400
cggagccctg cacggcatcc tctatgtgtt ggagtgtgac ctcttggatg acactgcaaa 8460
gcagctcatt ccagttgtta gtgactatct gctgtccaac ctcaaaggaa tagcccactg 8520
cgtgaacatt cacagccagc agcatgtgct ggtaatgtgt gccactgctt tctacctgat 8580
ggaaaactac cctctggatg tgggaccaga attttcagca tctgtgatac agatgtgtgg 8640

agtaatgctg tctggaagtg aggagtccac cccctccatc atttaccact gtgccctccg 8700
gggtctggag cggctcctgc tgtctgagca gctatctcgg ctagacacag agtccttggt 8760
caagctaagt gtggacagag tgaatgtaca aagcccacac agggccatgg cagccctagg 8820
cctgatgctc acctgcatgt acacaggaaa ggaaaaagcc agtccaggca gagcttctga 8880
ccccagccct gctacacctg acagcgagtc tgtgattgta gctatggagc gagtgtctgt 8940
tctctttgat aggatccgca agggatttcc ctgtgaagcc agggttgtgg caaggatcct 9000
gcctcagttc ctagatgact tctttccacc tcaagatgtc atgaacaaag tcattggaga 9060
gttcctgtcc aatcagcagc catacccaca gttcatggcc actgtagttt acaaggtttt 9120
tcagactctg cacagtgctg ggcagtcatc catggtccgg gactgggtca tgctgtccct 9180
gtccaacttc acacaaagaa cttcagttgc catggccatg tggagcctct cctgcttcct 9240
tgttagcgca tctaccagcc catgggtttc tgcgatcctt ccacatgtca tcagcaggat 9300
gggcaaactg gaacaggtgg atgtgaacct tttctgcctg gttgccacag acttctacag 9360
acaccagata gaggaggaat tcgaccgcag ggctttccag tctgtgtttg aggtggtggc 9420
ggcaccagga agtccatacc acaggctgct tgcttgtttg caaaatgttc acaaggtcac 9480
cacctgctga gtagtgcctg tgggacaaaa ggctgaaaga aggcagctgc tggggcctga 9540
gcctccagga gcctgctcca agcttctgct ggggctgcct tggccgtgca ggcttccact 9600
tgtgtcaagt ggacagccag gcaatggcag gagtgctttg caatgagggc tatgcaggga 9660
acatgcacta tgttggggtt gagcctgagt cctgggtcct ggcctcgctg cagctggtga 9720
cagtgctagg ttgaccaggt gtttgtcttt ttcctagtgt tcccctggcc atagtcgcca 9780
ggttgcagct gccctggtat gtggatcaga agtcctagct cttgccagat ggttctgagc 9840
ccgcctgctc cactgggctg gagagctccc tcccacattt acccagtagg catacctgcc 9900
acaccagtgt ctggacacaa aatgaatggt gtgtggggct gggaactggg gctgccaggt 9960
gtccagcacc attttccttt ctgtgttttc ttctcaggag ttaaaattta attatatcag 10020
taaagagatt aat 10033

<210> 13
<211> 3616
<212> DNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(3616)
<223> LOCUS Sca1 3616 bp mRNA linear R
OD 07-JAN-2002
DEFINITION Mus musculus spinocerebellar ataxia 1 homolog (human)
(Sca1), mRNA.
ACCESSION NM_009124

<300>
<308> NM_009124
<309> 2002-01-07

p11089.ST25.txt

<313> (1)..(3616)

<400> 13

ctcttcctcc actccctcca caggaagggc gtcacctgtc agattgcggc atcctggaac 60

agaatgaaag gatctgtgtt gaaacagcta cagtagggtt acagtagacc ctgagaaaac 120

agagtggact tcagcctgca cggatgagct tgaagcagga atggtttggg ttcaggcctc 180

ttacactgaa tttctctact gccacccttt ctactcaagc aacatcttac ggaaaagatc 240

tcccgggaag gaagtggctg cttgtggctt tgcactgtga tgaaggcaaa tggtacagtt 300

ttccaaagaa aatagaccaa actttcttc ttgagaagaa acaaacctgc tgttggcaga 360

gggtatttct aacctctctg cgaaagaaag aaagacacca ccagaacctg ggcatcccag 420

ctgctgaggg aagtttccat ggtgaagtct cagggaggct tcctgggagc agagcatagt 480

gaatgctaat ccggagctgc cactgccagc ctaaagaacc cacgggagat gattccccat 540

gaagggcctg gatcccctac agaaatccaa tgtgactctc tgtttatcag actaaaacca 600

gagccggcca gccagtgaaa cagccaccgt ggaggggga cggcgaaaaa tgaaatccaa 660

ccaagagcgg acgaacgaat gcctgcctcc caagaaacgt gagatccccg ccaccagccg 720

gccctcggag gagaaggcca ctgctctgcc cagcgacaac cactgcgtgg agggtgtggc 780

ctggctcccc agcacccctg gcatccgcgg ccatgggggt gggcggcacg ggtcagcagg 840

gacttccggg gagcatggtt tacaaggaat gggtttactt aaagcactgt ccgcagggct 900

ggattactcc ccacccagtg cccccaggtc agtccccaca gccaacacgc tgcccaccgt 960

gtaccctcct cctcagtcag ggaccccggt gtctcctgtg cagtacgccc acctttcgca 1020

taccttccag ttcattgggt cctcccaata cagtgggcct tacgcgggct ttatcccttc 1080

ccagctgatc tccccatcag gcaacccggt caccagtgca gtagcctcag ctgcaggggc 1140

caccactcca tcacagcgct cccagctgga ggcttattcc accctgctgg ccaacatggg 1200

cagtctgagc caggcaccag gacataaggt tgagcccccc ccgcagcagc acctcagcag 1260

ggctgcagga ttagtcaacc cggggtcccc tcctccaccc acccagcaga accagtacat 1320

ccatatttcc agctctccac agagctccgg gcgggcgaca tctcccccac ccatcccggt 1380

ccacctccat ccccatcaga cgatgatccc gcacacactc accctggggc cttcatccca 1440

ggtggttgtg caatatagtg atgccggagg ccactttgtt cctcgagagt ccaccaaaaa 1500

agccgagagc agcaggttgc agcaggctat gcaagccaag gaagtcctga atggggagat 1560

ggagaaaagc cggaggtatg gggcatcatc ttctgtggag ctgagcctag gcaaggcaag 1620

cagtaagtca gtgcctcatc cctatgagtc caggcatgtg gtggtccacc caagcccagc 1680

agactacagc agtcgtgata cctccggggt ccgtggatct gtgatggttc tgcctaatag 1740

cagcacaccc tcagccgacc tggaggccca gcagaccacg catcgagagg cctccccatc 1800

caccctcaat gacaagagcg gcctggcacc taggaagccg ggccacaggt cttatgcgct 1860

gtccccccac acggtcattc agaccacaca cagtgcatca gagcctctcc cggtgggcct 1920

accagccacg gccttctacg ctggcactca acctcctgtc atcggctacc tgagcggcca 1980

gcagcaagca atcacctatg ctggtggtct gccgcagcac ctggtgatcc caggtaacca 2040

gcccctgctc atcccggtgg gcagccctga catggacatg cctggggcag cctcggccat 2100

cgtgacgtca tcaccccagt ttgctgcagt acctcacacg tttgtcacca ccgccctgcc 2160

caagagcgag aacttcaacc cagaggctct ggtcacccag gcgtcctacc cagccatggt 2220

gcaggcccag atccacctgc cggtggtgca gtccgtggcg tcccccacca cggcgtctcc 2280

cacgctgccg ccatatttca tgaaaggctc catcatccag ctggccaacg gggagctgaa 2340

gaaggtggag gacctgaaga cggaggattt catccagagt gcagagatta gcaatgacct 2400

caagatccac tccagtactg tggagagaat cgaggagagc cacagccccg gggtggccgt 2460

gatacagttt gctgttggtg aacaccgagc ccaggtcagt gtcgaagtct tggtagagta 2520

tccttttttt gtatttggac agggctggtc atcctgctgt cctgagcgga ccagccagct 2580

ctttgatctg ccgtgttcca aactctctgt tggggacgtc tgcatctcgc tcaccctcaa 2640

gaacctgaag aatggctctg ttaaaaaggg ccagcctgtg gaccctgcca gcgtcctgct 2700

gaagcaggta aagaccgaca gcctggctgg cagcagacac agatacgcgg agcaggaaaa 2760

cggaatcaac cagggaagcg cccaggtgct ctctgagaat ggcgaactga agtttccaga 2820

aaaaatagga ttgcctgcag cacccttcct cagcaaaata gaaccgagca aacccacagc 2880

cacgaggaag aggaggaggt ggtcggcgcc ggagacccgt aaactggaga agtcggagga 2940

cgagccacct ttgactcttc ccaagccttc gctcattcct caggaggtta agatctgcat 3000

cgaaggccga tctaacgtgg gcaagtagag accttgcgag cagcggaggc ccggggctct 3060

tttactgtct gtatccagat tactgtactg taggctaagt aacacagtat ttacatgtta 3120

catcctcttt aggtttgtat tctaaccttg tcattagagt caaacaggtg tgtcgcagga 3180

gactggtgcg tttgcattgt ctgcaagggt ctgttgagga gctggtgggt tggaggatgg 3240

tcagaaccat gtccatggag ctcccgggca tccttagtgg ccctgaatgt ggcttcatca 3300

gcccctgcct tctccggcag tgtgcagagt cgaggggcat cagttcccac tggtttcaag 3360

aacaaacaca gtgggaagta tcctgcaagg gagtgtctgg gtgcgtgtcc cttgtgaagg 3420

agtgcgagtg agggtgtctc tttctctgcc tctgtctccc tcacttgctc cctctcagtg 3480

tggggttggg ggacctgggt ttcccacctg caaagtcatc agggaaccca gcttccaggc 3540

attgtaggga gacatcagac aggcggatgg gaaactagtt tcaaagaacg tggttctctc 3600

caacatattt tacaat 3616

<210> 14
<211> 1543
<212> RNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(1543)

p11089.ST25.txt

<223> LOCUS SNCA 1543 bp mRNA linear P
RI 05-NOV-2002
DEFINITION Homo sapiens synuclein, alpha (non A4 component of am
yloid
precursor) (SNCA), transcript variant NACP140, mRNA.

ACCESSION NM_000345: VERSION NM_000345.2 GI:6806896

<300>
<308> NM_000345
<309> 2002-11-05
<313> (1)..(1543)

<400> 14
ggaguggcca uucgacgaca gugguggugua aaggaauuca uuagccaugg auguauucau 60
gaaaggacuu ucaaaggcca aggagggagu uguggcugcu gcugagaaaa ccaaacaggg 120
uguggcagaa gcagcaggaa agacaaaaga ggguguucuc uauguaggcu ccaaaaccaa 180
ggagggagug gugcauggug uggcaacagu ggcugagaag accaaagagc aagugacaaa 240
uguuggagga gcagugguga cgggugugac agcaguagcc cagaagacag uggagggagc 300
agggagcauu gcagcagcca cuggcuuugu caaaaaggac caguugggca agaaugaaga 360
aggagcccca caggaaggaa uucuggaaga uaugccugug gauccugaca augaggcuua 420
ugaaaugccu ucugaggaag gguaucaaga cuacgaaccu gaagccuaag aaauaucuuu 480
gcucccaguu ucuugagauc ugcugacaga uguuccaucc uguacaagug cucaguucca 540
augugcccag ucaugacauu ucucaaaguu uuuacagugu aucucgaagu cuuccaucag 600
cagugauuga aguaucugua ccugccccca cucagcauuu cggugcuucc cuuucacuga 660
agugaauaca ugguagcagg gucuuugugu gcuguggauu uuguggcuuc aaucuacgau 720
guuaaaacaa auuaaaaaca ccuaagugac uaccacuuau uucuaaaucc ucacuauuuu 780
uuuguugcug uuguucagaa guuguuagug auuugcuauc auauauuaua agauuuuuag 840
gugucuuuua augauacugu cuaagaauaa ugacguauug ugaaauuugu uaauauauau 900
aauacuuaaa aauaugugag caugaaacua ugcaccuaua aauacuaaau augaaauuuu 960
accauuuugc gauguguuuu auucacuugu guuuguauau aaauggugag aauuaaaaua 1020
aaacguuauc ucauugcaaa aauauuuuau uuuuauccca ucucacuuua auaauaaaaa 1080
ucaugcuuau aagcaacaug aauuaagaac ugacacaaag gacaaaaaua uaaaguuauu 1140
aauagccauu ugaagaagga ggaauuuuag aagagguaga gaaaauggaa cauuaacccu 1200
acacucggaa uucccugaag caacacugcc agaagugugu uuugguaugc acugguuccu 1260
uaaguggcug ugauuaauua uugaaagugg gguguugaag accccaacua cuauuguaga 1320
guggucuauu ucucccuuca auccugucaa uguuugcuuu auguauuuug gggaacuguu 1380
guuugaugug uauguguuua uaauuguuau acauuuuuaa uugagccuuu uauuaacaua 1440
uauuguuauu uuugucucga aauaauuuuu uaguuaaaau cuauuuuguc ugauauuggu 1500
gugaaugcug uaccuuucug acaauaaaua auauucgacc aug 1543

p11089.ST25.txt

<210> 15
<211> 10660
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(10660)
<223> LOCUS SCA1 10660 bp mRNA linear P
RI 31-OCT-2000
DEFINITION Homo sapiens spinocerebellar ataxia 1 (olivopontocere
bellar ataxia
1, autosomal dominant, ataxin 1) (SCA1), mRNA.
ACCESSION NM_000332

<300>
<308> NM_000332
<309> 2000-10-31
<313> (1)..(10660)

<400> 15
ctactacagt ggcggacgta caggacctgt ttcactgcag ggggatccaa aacaagcccc 60
gtggagcaac agccagagca acagcagctg caagacattg tttctctccc tctgcccccc 120
cttccccacg caaccccaga tccatttaca ctttacagtt ttacctcaca aaaactacta 180
caagcaccaa gctccctgat ggaaaggagc atcgtgcatc aagtcaccag ggtggtccat 240
tcaagctgca gatttgtttg tcatccttgt acagcaatct cctcctccac tgccactaca 300
gggaagtgca tcacatgtca gcatactgga gcatagtgaa agagtctatt ttgaagcttc 360
aaacttagtg ctgctgcaga ccaggaacaa gagagaaaga gtggatttca gcctgcacgg 420
atggtcttga aacacaaatg gtttttggtc taggcgtttt acactgagat tctccactgc 480
caccctttct actcaagcaa aatcttcgtg aaaagatctg ctgcaaggaa ctgatagctt 540
atggttctcc attgtgatga aagcacatgg tacagttttc caaagaaatt agaccatttt 600
cttcgtgaga aagaaatcga cgtgctgttt tcatagggta tttctcactt ctctgtgaaa 660
ggaagaaaga acacgcctga gcccaagagc cctcaggagc cctccagagc ctgtgggaag 720
tctccatggt gaagtatagg ctgaggctac ctgtgaacag tacgcagtga atgttcatcc 780
agagctgctg ttggcggatt gtacccacgg ggagatgatt cctcatgaag agcctggatc 840
ccctacagaa atcaaatgtg actttccgtt tatcagacta aaatcagagc catccagaca 900
gtgaaacagt caccgtggag gggggacggc gaaaaatgaa atccaaccaa gagcggagca 960
acgaatgcct gcctcccaag aagcgcgaga tccccgccac cagccggtcc tccgaggaga 1020
aggcccctac cctgcccagc gacaaccacc gggtggaggg cacagcatgg ctcccgggca 1080
accctggtgg ccggggccac gggggcggga ggcatgggcc ggcagggacc tcggtggagc 1140
ttggtttaca acagggaata ggtttacaca aagcattgtc cacagggctg gactactccc 1200
cgcccagcgc tcccaggtct gtccccgtgg ccaccacgct gcctgccgcg tacgccaccc 1260
cgcagccagg gaccccggtg tcccccgtgc agtacgctca cctgccgcac accttccagt 1320

tcattgggtc ctcccaatac agtggaacct atgccagctt catcccatca cagctgatcc 1380

ccccaaccgc caaccccgtc accagtgcag tggcctcggc cgcaggggcc accactccat 1440

cccagcgctc ccagctggag gcctattcca ctctgctggc caacatgggc agtctgagcc 1500

agacgccggg acacaaggct gagcagcagc agcagcagca gcagcagcag cagcagcagc 1560

atcagcatca gcagcagcag cagcagcagc agcagcagca gcagcagcag cagcacctca 1620

gcagggctcc ggggctcatc accccggggt ccccccccacc agcccagcag aaccagtacg 1680

tccacatttc cagttctccg cagaacaccg gccgcaccgc ctctcctccg gccatccccg 1740

tccacctcca cccccaccag acgatgatcc cacacacgct caccctgggg ccccccctccc 1800

aggtcgtcat gcaatacgcc gactccggca gccactttgt ccctcgggag gccaccaaga 1860

aagctgagag cagccggctg cagcaggcca tccaggccaa ggaggtcctg aacggtgaga 1920

tggagaagag ccggcggtac ggggccccgt cctcagccga cctgggcctg ggcaaggcag 1980

gcggcaagtc ggttcctcac ccgtacgagt ccaggcacgt ggtggtccac ccgagcccct 2040

cagactacag cagtcgtgat ccttcggggg tccgggcctc tgtgatggtc ctgcccaaca 2100

gcaacacgcc cgcagctgac ctggaggtgc aacaggccac tcatcgtgaa gcctcccctt 2160

ctaccctcaa cgacaaaagt ggcctgcatt tagggaagcc tggccaccgg tcctacgcgc 2220

tctcacccca cacggtcatt cagaccacac acagtgcttc agagccactc ccggtgggac 2280

tgccagccac ggccttctac gcagggactc aacccctgt catcggctac ctgagcggcc 2340

agcagcaagc aatcacctac gccggcagcc tgccccagca cctggtgatc cccggcacac 2400

agcccctgct catcccggtc ggcagcactg acatggaagc gtcgggggca gccccggcca 2460

tagtcacgtc atccccccag tttgctgcag tgcctcacac gttcgtcacc accgcccttc 2520

ccaagagcga gaacttcaac cctgaggccc tggtcaccca ggccgcctac ccagccatgg 2580

tgcaggccca gatccacctg cctgtggtgc agtccgtggc ctccccggcg gcggctcccc 2640

ctacgctgcc tccctacttc atgaaaggct ccatcatcca gttggccaac ggggagctaa 2700

agaaggtgga agacttaaaa acagaagatt tcatccagag tgcagagata agcaacgacc 2760

tgaagatcga ctccagcacc gtagagagga ttgaagacag ccatagcccg ggcgtggccg 2820

tgatacagtt cgccgtcggg gagcaccgag cccaggtcag cgttgaagtt ttggtagagt 2880

atccttttttt tgtgtttgga cagggctggt catcctgctg tccggagaga accagccagc 2940

tctttgattt gccgtgttcc aaactctcag ttggggatgt ctgcatctcg cttaccctca 3000

agaacctgaa gaacggctct gttaaaaagg gccagcccgt ggatcccgcc agcgtcctgc 3060

tgaagcactc aaaggccgac ggcctggcgg gcagcagaca caggtatgcc gagcaggaaa 3120

acggaatcaa ccaggggagt gcccagatgc tctctgagaa tggcgaactg aagtttccag 3180

agaaaatggg attgcctgca gcgcccttcc tcaccaaaat agaacccagc aagcccgcgg 3240

caacgaggaa gaggaggtgg tcggcgccag agagccgcaa actggagaag tcagaagacg 3300

aaccaccttt gactcttcct aagccttctc taattcctca ggaggttaag atttgcattg 3360

aaggccggtc taatgtaggc aagtagaggc agcgtggggg aaaggaaacg tggctctccc 3420

ttatcatttg tatccagatt actgtactgt aggctaaaat aacacagtat ttacatgtta 3480

tcttcttaat tttaggtttc tgttctaacc ttgtcattag agttacagca ggtgtgtcgc 3540

aggagactgg tgcatatgct ttttccacga gtgtctgtca gtgagcgggc gggaggaagg 3600

gcacagcagg agcggtcagg gctccaggca tccccgggga agaaaggaac ggggcttcac 3660

agtgcctgcc ttctctagcg gcacagaagc agccgggggc gctgactccc gctagtgtca 3720

ggagaaaagt cccgtgggaa gagtcctgca ggggtgcagg gttgcacgca tgtgggggtg 3780

cacaggcgct gtggcggcga gtgagggtct ctttttctct gcctccctct gcctcactct 3840

cttgctatcg gcatgggccg gggggttca gagcagtgtc ctcctggggt tcccacgtgc 3900

aaaatcaaca tcaggaaccc agcttcaggg catcgcggag acgcgtcaga tggcagattt 3960

ggaaagttaa ccatttaaaa gaacattttt ctctccaaca tattttacaa taaaagcaac 4020

ttttaattgt atagatatat atttcccccc atggggcctg actgcactga tatatatttt 4080

ttttaaagag caactgccac atgcgggatt tcatttctgc tttttactag tgcagcgatg 4140

tcaccagggt gttgtggtgg acagggaagc ccctgctgtc atggccccac atggggtaag 4200

gggggttggg ggtgggggag agggagagag cgaacaccca cgctggtttc tgtgcagtgt 4260

taggaaaacc aatcaggtta ttgcattgac ttcactccca agaggtagat gcaaactgcc 4320

cttcagtgag agcaacagaa gctcttcacg ttgagtttgc gaaatctttt tgtctttgaa 4380

ctctagtact gtttatagtt catgactatg gacaactcgg gtgccacttt ttttttttc 4440

agattccagt gtgacatgag gaattagatt ttgaagatga gcatatatta ctatctttaa 4500

gcatttaaaa atactgttca cactttatta ccaagcatct tggtctctca ttcaacaagt 4560

actgtatctc actttaaact ctttggggaa aaaacaaaaa caaaaaaaac taagttgctt 4620

tctttttttc aacactgtaa ctacatttca gctctgcaga attgctgaag agcaagatat 4680

tgaaagtttc aatgtggttt aaagggatga atgtgaatta tgaactagta tgtgacaata 4740

aatgaccacc aagtactacc tgacgggagg cacttttcac tttgatgtct gagaatcagt 4800

tcaaggcata tgcagagttg gcagagaaac tgagagaaaa gggatggaga agagaatact 4860

cattttgtc cagtgttttt ctttttaaga tgaactttta aagaaccttg cgatttgcac 4920

atattgagtt tataacttgt gtgatattcc tgcagttttt atccaataac attgtgggaa 4980

aggtttgggg gactgaacga gcataaataa atgtagcaaa atttctttct aacctgccta 5040

aactctaggc cattttataa ggttatgttc ctttgaaaat tcattttggt ctttttacca 5100

catctgtcac aaaaagccag gtcttagcgg gctcttagaa actctgagaa ttttcttcag 5160

attcattgag agagttttcc ataaagacat ttatatatgt gagcaagatt ttttttaaac 5220

aattacttta ttattgttgt tattaatgtt attttcagaa tggctttttt tttctattca 5280

aaatcaaatc gagatttaat gtttggtaca aacccagaaa gggtatttca tagttttaa 5340

acctttcatt cccagagatc cgaaatatca tttgtgggtt ttgaatgcat ctttaaagtg 5400
ctttaaaaaa aagttttata agtagggaga aatttttaaa tattcttact tggatggctg 5460
caactaaact gaacaaatac ctgacttttc ttttacccca ttgaaaatag tactttcttc 5520
gtttcacaaa ttaaaaaaaa aatctggtat caacccacat tttggctgtc tagtattcat 5580
ttacatttag ggttcaccag gactaatgat ttttataaac cgttttctgg ggtgtaccaa 5640
aaacatttga ataggtttag aatagctaga atagttcctt gactttcctc gaatttcatt 5700
accctctcag catgcttgca gagagctggg tgggctcatt cttgcagtca tactgcttat 5760
ttagtgctgt atttttaaa cgtttctgtt cagagaactt gcttaatctt ccatatattc 5820
tgctcagggc acttgcaatt attaggtttt gtttttcttt ttgtttttta gcctttgatg 5880
gtaagaggaa tacgggctgc cacatagact ttgttctcat taatatcact atttacaact 5940
catgtggact cagaaaaaca cacaccacct tttggcttac ttcgagtatt gaattgactg 6000
gatccactaa accaacacta agatgggaaa acacacatgg tttggagcaa taggaacatc 6060
atcataattt ttgtggttct atttcaggta taggaattat aaaataattg gttctttcta 6120
aacacttgtc ccatttcatt ctcttgcttt tttagcatgt gcaatacttt ctgtgccaat 6180
agagtctgac cagtgtgcta tatagttaaa gctcattccc ttttggcttt ttccttgttt 6240
ggttgatctt ccccattctg gccagagcag ggctggaggg aaggagccag gagggagaga 6300
gcctcccacc tttcccctgc tgcggatgct gagtgctggg gcggggagcc ttcaggagcc 6360
ccgtgcgtct gccgccacgt tgcagaaaga gccagccaag gagacccggg ggaggaaccg 6420
cagtgtcccc tgtcaccaca cggaatagtg aatgtggagt gtggagagga aggaggcaga 6480
ttcatttcta agacgcactc tggagccatg tagcctggag tcaacccatt ttccacggtc 6540
ttttctgcaa gtgggcaggc ccctcctcgg ggtctgtgtc cttgagactt ggagccctgc 6600
ctctgagcct ggacgggaag tgtggcctgt tgtgtgtgtg cgttctgagc gtgttggcca 6660
gtggctgtgg aggggaccac ctgccaccca cggtcaccac tcccttgtgg cagctttctc 6720
ttcaaatagg aagaacgcac agagggcagg agcctcctgt ttgcagacgt tggcgggccc 6780
cgaggctccc agagcagcct ctgtcaccgc ttctgtgtag caaacattaa cgatgacagg 6840
ggtagaaatt cttcggtgcc gttcagctta caaggatcag ccatgtgcct ctgtactatg 6900
tccactttgc aatatttacc gacagccgtc ttttgttctt tctttcctgt tttccatttt 6960
taaactagta acagcaggcc ttttgcgttt acaatggaac acaatcacca agaaattagt 7020
cagggcgaaa agaaaaaaat aatactatta ataagaaacc aacaaacaag aacctctctt 7080
tctagggatt tctaaatata taaaatgact gttccttaga atgtttaact taagaattat 7140
ttcagtttgt ctgggccaca ctggggcaga ggggggaggg agggatacag agatggatgc 7200
cacttacctc agatctttta aagtggaaat ccaaattgaa ttttcatttg gactttcagg 7260
ataatttttct atgttggtca acttttcgtt ttccctaact cacccagttt agtttgggat 7320
gatttgattt ctgttgttgt tgatcccatt tctaacttgg aattgtgagc ctctatgttt 7380

tctgttaggt gagtgtgttg ggtttttcc ccccaccagg aagtggcagc atccctcctt 7440
ctcccctaaa gggactctgc ggaacctttc acacctcttt ctcagggacg gggcaggtgt 7500
gtgtgtggta cactgacgtg tccagaagca gcactttgac tgctctggag tagggttgta 7560
caatttcaag gaatgtttgg atttcctgca tcttgtggat tactccttag ataccgcata 7620
gattgcaata taatgctgca tgttcaagat gaacagtagc tcctagtaat cataaaatcc 7680
actctttgca cagtttgatc tttactgaaa tatgttgcca aaatttattt ttgttgttgt 7740
agctctggat tttgttttgt tttgtttttt aaggaaacga ttgacaatac cctttaacat 7800
ctgtgactac taaggaaacc tatttctttc atagagagaa aaatctccaa tgcttttgaa 7860
gacactaata ccgtgctatt tcagatatgg gtgaggaagc agagctctcg gtaccgaagg 7920
ccgggcttct tgagctgtgt tggttgtcat ggctactgtt tcatgaacca caagcagctc 7980
aacagactgg tctgttgcct tctgaaaccc tttgcacttc aatttgcacc aggtgaaaac 8040
agggccagca gactccatgg cccaattcgg tttcttcggt ggtgatgtga aaggagagaa 8100
ttacactttt ttttttttta agtggcgtgg aggcctttgc ttccacattt gtttttaacc 8160
cagaatttct gaaatagaga atttaagaac acatcaagta ataaatatac agagaatata 8220
ctttttttata aagcacatgc atctgctatt gtgttgggtt ggtttcctct cttttccacg 8280
gacagtgttg tgtttctggc atagggaaac tccaaacaac ttgcacacct ctactccgga 8340
gctgagattt cttttacata gatgacctcg cttcaaatac gttaccttac tgatgatagg 8400
atcttttctt gtagcactat accttgtggg aatttttttt taaatgtaca cctgatttga 8460
gaagctgaag aaaacaaaat tttgaagcac tcactttgag gagtacaggt aatgttttaa 8520
aaaattgcac aaaagaaaaa tgaatgtcga aatgattcat tcagtgtttg aaagatatgg 8580
ctctgttgaa acaatgagtt tcatactttg tttgtaaaaa aaaaaagcag agaagggttg 8640
aaagttacat gtttttttgt atatagaaat ttgtcatgtc taaatgatca gatttgtatg 8700
gttatggcct ggaagaatta ctacgtaaaa ggctcttaaa ctatacctat gcttattgtt 8760
atttttgtta catatagccc tcgtctgagg gaggggaact cggtattctg cgatttgaga 8820
atactgttca ttcctatgct gaaagtactt ctctgagctc ccttcttagt ctaaactctt 8880
aagccattgc aacttctttt tcttcagaga tgatgtttga cattttcagc acttcctgtt 8940
cctataaacc caaagaatat aatcttgaac acgaagtgtt tgtaacaagg gatccaggct 9000
accaatcaaa caggactcat tatggggaca aaaaaaaaaa aaattatttc accttctttc 9060
cccccacacc tcatttaaat ggggggagta aaaacatgat ttcaatgtaa atgcctcatt 9120
ttattttagt tttattttga tttttattta atataaagag gccagaataa atacggagca 9180
tcttctcaga atagtattcc tgtccaaaaa tcaagccgga cagtggaaac tggacagctg 9240
tggggatatt aagcaccccc acttacaatt cttaaattca gaatctcgtc ccctcccttc 9300
tcgttgaagg caactgttct ggtagctaac tttctcctgt gtaatggcgg gagggaacac 9360

cggcttcagt ttttcatgtc cccatgactt gcatacaaat ggttcaactg tattaaaatt 9420
aagtgcattt ggccaatagg tagtatctat acaataacaa caatctctaa gaatttccat 9480
aacttttctt atctgaaagg actcaagtct tccactgcag atacattgga ggcttcaccc 9540
acgttttctt tccctttagt ttgtttgctg tctggatggc caatgagcct gtctcctttt 9600
ctgtggccaa tctgaaggcc ttcgttggaa gtgttgttca cagtaatcct taccaagata 9660
acatactgtc ctccagaata ccaagtatta ggtgacacta gctcaagctg ttgtcttcag 9720
agcagttacc aagaagctcg gtgcacaggt tttctctggt tcttacagga accacctact 9780
ctttcagttt tctggcccag gagtggggta aatcctttag ttagtgcatt tgaacttggt 9840
acctgtgcat tcagttctgt gaatactgcc ctttttggcg gggtttcctc atctccccag 9900
cctgaactgc tcaactctaa acccaaatta gtgtcagccg aaaggaggtt tcaagatagt 9960
cctgtcagta tttgtggtga ccttcagatt agacagtctt catttccagc cagtggagtc 10020
ctggctccag agccatctct gagactccgt actactggat gttttaatat cagatcatta 10080
cccaccatat gcctcccaca ggccaaggga aaacagacac cagaacttgg gttgagggca 10140
ctaccagact gacatggcca gtacagagga gaactaggga aggaatgatg ttttgcacct 10200
tattgaaaag aaaattttaa gtgcatacat aatagttaag agcttttatt gtgacaggag 10260
aacttttttc catatgcgtg catactctct gtaattccag tgtaaaatat tgtacttgca 10320
ctagcttttt taaacaaata ttaaaaaatg gaagaattca tattctattt tctaatcgtg 10380
gtgtgtctat ttgtaggata cactcgagtc tgtttattga attttatggt ccctttcttt 10440
gatggtgctt gcaggttttc taggtagaaa ttatttcatt attataataa aacaatgttt 10500
gattcaaaat ttgaacaaaa ttgttttaaa taaattgtct gtataccagt acaagtttat 10560
tgtttcagta tactcgtact aataaaataa cagtgccaat tgcaaaaaaa aaaaaaaaaa 10620
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 10660

<210> 16
<211> 1900
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(1900)
<223> LOCUS MJD 1900 bp mRNA linear P
RI 31-JUL-2002
DEFINITION Homo sapiens Machado-Joseph disease (spinocerebellar ataxia 3,
olivopontocerebellar ataxia 3, . . .
ACCESSION NM_004993

<300>
<308> NM_004993
<309> 2002-07-31
<313> (1)..(1900)

<400> 16

ggggcggagc tggaggggt ggttcggcgt gggggccgtt ggctccagac aaataaacat 60

ggagtccatc ttccacgaga aacaagaagg ctcactttgt gctcaacatt gcctgaataa 120

cttattgcaa ggagaatatt ttagccctgt ggaattatcc tcaattgcac atcagctgga 180

tgaggaggag aggatgagaa tggcagaagg aggagttact agtgaagatt atcgcacgtt 240

tttacagcag ccttctggaa atatggatga cagtggtttt ttctctattc aggttataag 300

caatgccttg aaagtttggg gtttagaact aatcctgttc aacagtccag agtatcagag 360

gctcaggatc gatcctataa atgaaagatc atttatatgc aattataagg aacactggtt 420

tacagttaga aaattaggaa aacagtggtt taacttgaat tctctcttga cgggtccaga 480

attaatatca gatacatatc ttgcactttt cttggctcaa ttacaacagg aaggttattc 540

tatatttgtc gttaagggtg atctgccaga ttgcgaagct gaccaactcc tgcagatgat 600

tagggtccaa cagatgcatc gaccaaaact tattggagaa gaattagcac aactaaaaga 660

gcaaagagtc cataaaacag acctggaacg agtgttagaa gcaaatgatg gctcaggaat 720

gttagacgaa gatgaggagg atttgcagag ggctctggca ctaagtcgcc aagaaattga 780

catggaagat gaggaagcag atctccgcag ggctattcag ctaagtatgc aaggtagttc 840

cagaaacata tctcaagata tgacacagac atcaggtaca aatcttactt cagaagagct 900

tcggaagaga cgagaagcct actttgaaaa acagcagcaa aagcagcaac agcagcagca 960

gcagcagcag caggggacc tatcaggaca gagttcacat ccatgtgaaa ggccagccac 1020

cagttcagga gcacttggga gtgatctagg tgatgctatg agtgaagaag acatgcttca 1080

ggcagctgtg accatgtctt tagaaactgt cagaaatgat ttgaaaacag aaggaaaaaa 1140

ataatacctt taaaaaataa tttagatatt catactttcc aacattatcc tgtgtgatta 1200

cagcataggg tccactttgg taatgtgtca aagagatgag gaaataagac ttttagcggt 1260

ttgcaaacaa aatgatggga aagtggaaca atgcgtcggt tgtaggacta ataatgatc 1320

ttccaaatat tagccaaaga ggcattcagc aattaaagac atttaaaata gttttctaaa 1380

tgtttctttt tctttttga gtgtgcaata tgtaacatgt ctaaagttag ggcatttttc 1440

ttggatcttt ttgcagacta gctaattagc tctcgcctca ggcttttcc atatagtttg 1500

ttttctttt ctgtcttgta ggtaagttgg ctcacatcat gtaatagtgg ctttcatttc 1560

ttattaacca aattaacctt tcaggaaagt atctctactt tcctgatgtt gataatagta 1620

atggttctag aaggatgaac agttctccct tcaactgtat accgtgtgct ccagtgtttt 1680

cttgtgttgt tttctctgat cacaactttt ctgctacctg gttttcatta ttttcccaca 1740

attcttttga aagatggtaa tcttttctga ggtttagcgt tttaagccct acgatgggat 1800

cattatttca tgactggtgc gttcctaaac tctgaaatca gccttgcaca agtacttgag 1860

aataaatgag catttttaa aaaaaaaaaa aaaaaaaaaa 1900

<210> 17
<211> 1735

p11089.ST25.txt

<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(1735)
<223> LOCUS MJD 1735 bp mRNA linear P
RI 31-JUL-2002
DEFINITION Homo sapiens Machado-Joseph disease (spinocerebellar ataxia 3,
olivopontocerebellar ataxia 3, autosomal dominant, at
axin 3) (MJD) . . .
ACCESSION NM_030660

<300>
<308> NM_030660
<309> 2002-07-31
<313> (1)..(1735)

<400> 17
ggggcggagc tggaggggt ggttcggcgt gggggccgtt ggctccagac aaataaacat 60
ggagtccatc ttccacgaga aacagccttc tggaaatatg gatgacagtg gtttttctc 120
tattcaggtt ataagcaatg ccttgaaagt ttggggttta gaactaatcc tgttcaacag 180
tccagagtat cagaggctca ggatcgatcc tataaatgaa agatcattta tatgcaatta 240
taaggaacac tggtttacag ttagaaaatt aggaaaacag tggtttaact tgaattctct 300
cttgacgggt ccagaattaa tatcagatac atatcttgca cttttcttgg ctcaattaca 360
acaggaaggt tattctatat ttgtcgttaa gggtgatctg ccagattgcg aagctgacca 420
actcctgcag atgattaggg tccaacagat gcatcgacca aaacttattg gagaagaatt 480
agcacaacta aaagagcaaa gagtccataa aacagacctg gaacgagtgt tagaagcaaa 540
tgatggctca ggaatgttag acgaagatga ggaggatttg cagagggctc tggcactaag 600
tcgccaagaa attgacatgg aagatgagga agcagatctc cgcagggcta ttcagctaag 660
tatgcaaggt agttccagaa acatatctca agatatgaca cagacatcag gtacaaatct 720
tacttcagaa gagcttcgga agagacgaga agcctacttt gaaaaacagc agcaaaagca 780
gcaacagcag cagcagcagc agcagcaggg ggacctatca ggacagagtt cacatccatg 840
tgaaaggcca gccaccagtt caggagcact tgggagtgat ctaggtgatg ctatgagtga 900
agaagacatg cttcaggcag ctgtgaccat gtctttagaa actgtcagaa atgatttgaa 960
aacagaagga aaaaaataat acctttaaaa aataatttag atattcatac tttccaacat 1020
tatcctgtgt gattacagca tagggtccac tttggtaatg tgtcaaagag atgaggaaat 1080
aagactttta gcggtttgca aacaaaatga tgggaaagtg gaacaatgcg tcggttgtag 1140
gactaaataa tgatcttcca aatattagcc aaagaggcat tcagcaatta aagacattta 1200
aaatagtttt ctaaatgttt ctttttcttt tttgagtgtg caatatgtaa catgtctaaa 1260
gttagggcat ttttcttgga tctttttgca gactagctaa ttagctctcg cctcaggctt 1320
tttccatata gtttgttttc tttttctgtc ttgtaggtaa gttggctcac atcatgtaat 1380

agtggctttc atttcttatt aaccaaatta acctttcagg aaagtatctc tactttcctg 1440

atgttgataa tagtaatggt tctagaagga tgaacagttc tcccttcaac tgtataccgt 1500

gtgctccagt gttttcttgt gttgttttct ctgatcacaa cttttctgct acctggtttt 1560

cattattttc ccacaattct tttgaaagat ggtaatcttt tctgaggttt agcgttttaa 1620

gccctacgat gggatcatta tttcatgact ggtgcgttcc taaactctga aatcagcctt 1680

gcacaagtac ttgagaataa atgagcattt tttaaaaaaa aaaaaaaaaa aaaaa 1735

<210> 18
<211> 5832
<212> RNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(5832)
<223> ACCESSION NM_012104
VERSION NM_012104.2 GI:21040369

<220>
<221> misc_feature
<222> (1)..(5832)
<223> LOCUS BACE 5832 bp mRNA linear PRI 05-NOV-2002
DEFINITION Homo sapiens beta-site APP-cleaving enzyme (BACE), tr
anscript
variant a, mRNA.

<300>
<308> NM_012104
<309> 2002-11-05
<313> (1)..(5832)

<400> 18
uccccagccc gcccgggagc ugcgagccgc gagcuggauu augguggccu gagcagccaa 60

cgcagccgca ggagcccgga gcccuugccc cugcccgcgc cgccgcccgc cgggggacc 120

agggaagccg ccaccggccc gccaugcccg ccccucccag ccccgccggg agcccgcgcc 180

cgcugcccag gcuggccgcc gccgugccga uguagcgggc uccggauccc agccucuccc 240

cugcucccgu gcucugcgga ucucccccuga ccgcucucca cagcccggac ccgggggcug 300

gcccagggcc cugcaggccc uggcguccug augcccccaa gcucccucuc cugagaagcc 360

accagcacca cccagacuug ggggcaggcg ccagggacgg acgugggcca gugcgagccc 420

agagggcccg aaggccgggg cccaccaugg cccaagcccu gcccuggcuc cugcugugga 480

ugggcgcggg agugcugccu gcccacggca cccagcacgg cauccggcug ccccugcgca 540

gcggccuggg gggcgccccc cuggggcugc ggcugccccg ggagaccgac gaagagcccg 600

aggagcccgg ccggaggggc agcuuugugg agauggugga caaccugagg ggcaagucgg 660

ggcagggcua cuacguggag augaccgugg gcagcccccc gcagacgcuc aacauccugg 720

uggauacagg cagcaguaac uuugcagugg gugcugcccc ccacccccuuc cugcaucgcu 780

acuaccagag gcagcugucc agcacauacc gggaccuccg gaagggugug uaugugcccu 840

acacccaggg caagugggaa ggggagcugg gcaccgaccu gguaagcauc ccccauggcc 900
ccaacgucac ugugcgugcc aacauugcug ccaucacuga aucagacaag uucuucauca 960
acggcuccaa cugggaaggc auccuggggc uggccuaugc ugagauugcc aggccugacg 1020
acucccugga gccuuucuuu gacucucugg uaaagcagac ccacguuccc aaccucuucu 1080
cccugcagcu uuguggugcu ggcuuccccc ucaaccaguc ugaagugcug gccucugucg 1140
gagggagcau gaucauugga gguaucgacc acucgcugua cacaggcagu cucugguaua 1200
cacccauccg gcgggagugg uauuaugagg ucaucauugu gcggguggag aucaauggac 1260
aggaucugaa aauggacugc aaggaguaca acuaugacaa gagcauugug gacaguggca 1320
ccaccaaccu ucguuugccc aagaaagugu uugaagcugc agucaaaucc aucaaggcag 1380
ccuccuccac ggagaaguuc ccugaugguu ucuggcuagg agagcagcug gugugcuggc 1440
aagcaggcac caccccuugg aacauuuucc cagucaucuc acucuaccua augggugagg 1500
uuaccaacca guccuuccgc aucaccaucc uuccgcagca auaccugcgg ccaguggaag 1560
auguggccac gucccaagac gacuguuaca aguuugccau cucacaguca uccacgggca 1620
cuguuauggg agcuguuauc auggagggcu ucuacguugu cuuugaucgg gcccgaaaac 1680
gaauuggcuu ugcugucagc gcuugccaug ugcacgauga guucaggacg gcagcggugg 1740
aaggcccuuu ugucaccuug gacauggaag acuguggcua caacauucca cagacagaug 1800
agucaacccu caugaccaua gccuauguca uggcugccau cugcgcccuc uucaugcugc 1860
cacucugccu cauggugugu caguggcgcu gccuccgcug ccugcgccag cagcaugaug 1920
acuuugcuga ugacaucucc cugcugaagu gaggaggccc augggcagaa gauagagauu 1980
ccccuggacc acaccuccgu gguucacuuu ggucacaagu aggagacaca gauggcaccu 2040
guggccagag caccucagga cccucccccac ccaccaaaug ccucugccuu gauggagaag 2100
gaaaaggcug gcaagguggg uuccagggac uguaccugua ggaaacagaa aagagaagaa 2160
agaagcacuc ugcuggcggg aauacucuug gucaccucaa auuuaagucg ggaaauucug 2220
cugcuugaaa cuucagcccu gaaccuuugu ccaccauucc uuuaaauucu ccaacccaaa 2280
guauucuucu uuucuuaguu ucagaaguac uggcaucaca cgcagguuac cuuggcgugu 2340
gucccugugg uacccuggca gagaagagac caagcuuguu ucccugcugg ccaaagucag 2400
uaggagagga ugcacaguuu gcuauuugcu uuagagacag ggacuguaua aacaagccua 2460
acauuggugc aaagauugcc ucuugaauua aaaaaaaaaa cuagauugac uauuuauaca 2520
aauggggggcg gcuggaaaga ggagaaggag agggaguaca aagacaggga auagugggau 2580
caaagcuagg aaaggcagaa acacaaccac ucaccagucc uaguuuuaga ccucaucucc 2640
aagauagcau cccaucucag aagaugggug uuguuuucaa uguuuucuuu ucugugguug 2700
cagccugacc aaaagugaga ugggaagggc uuaucuagcc aaagagcucu uuuuuagcuc 2760
ucuuaaaauga agugcccacu aagaaguucc acuuaacaca ugaauuucug ccauauuaau 2820

uucauugucu cuaucugaac cacccuuuau ucuacauaug auaggcagca cugaaauauc 2880

cuaacccccu aagcuccagg ugcccugugg gagagcaacu ggacuauagc agggcugggc 2940

ucugucuucc uggucauagg cucacucuuu cccccaaauc uuccucugga gcuuugcagc 3000

caaggugcua aaaggaauag guaggagacc ucuucuaucu aauccuuaaa agcauaaugu 3060

ugaacauuca uucaacagcu gaugcccuau aaccccugcc uggauuucuu ccuauuaggc 3120

uauaagaagu agcaagaucu uuacauaauu cagagugguu ucacugccuu ccuacccucu 3180

cuaauggccc cuccauuuau uugacuaaag caucacacag uggcacuagc auuauaccaa 3240

gaguaugaga aauacagugc uuuauggcuc uaacauuacu gccuucagua ucaaggcugc 3300

cuggagaaag gauggcagcc ucagggcuuc cuuauguccu ccaccacaag agcuccuuga 3360

ugaaggucau cuuuuucccc uauccuguuc uucccccuccc cgcuccuaau gguacguggg 3420

uacccaggcu gguucuuggg cuagguagug gggaccaagu ucauuaccuc ccuaucaguu 3480

cuagcauagu aaacuacggu accaguguua gugggaagag cuggguuuuc cuaguauacc 3540

cacugcaucc uacuccuacc uggucaaccc gcugcuucca gguaugggac cugcuaagug 3600

uggaauuacc ugauaaggga gagggaaaua caaggagggc cucugguguu ccuggccuca 3660

gccagcugcc cacaagccau aaaccaauaa aacaagaaua cugagucagu uuuuuaucug 3720

gguucucuuc auucccacug cacuuggugc ugcuuuggcu gacugggaac accccauaac 3780

uacagagucu gacaggaaga cuggagacug uccacuucua gcucggaacu uacuguguaa 3840

auaaacuuuc agaacugcua ccaugaagug aaaaugccac auuuugcuuu auaauuucua 3900

cccauguugg gaaaaacugg cuuuuuccca gcccuuucca gggcauaaaa cucaaccccu 3960

ucgauagcaa gucccaucag ccuauuauuu uuuuaaagaa aacuugcacu uguuuuucuu 4020

uuuacaguua cuuccuuccu gccccaaaau uauaaacucu aaguguaaaa aaaagucuua 4080

acaacagcuu cuugcuugua aaaauaugua uuauacaucu guauuuuuaa auucugcucc 4140

ugaaaaauga cugucccauu cuccacucac ugcauuuggg gccuuuccca uuggucugca 4200

ugucuuuuau cauugcaggc caguggacag agggagaagg gagaacaggg gucgccaaca 4260

cuuguguugc uuucugacug auccugaaca agaaagagua acacugaggc gcucgcuccc 4320

augcacaacu cuccaaaaca cuuauccucc ugcaagagug ggcuuuccag ggucuuuacu 4380

gggaagcagu uaagcccccu ccucaccccu uccuuuuuuc uuucuuuacu ccuuuggcuu 4440

caaaggauuu uggaaaagaa acaauaugcu uuacacucau uuucaauuuc uaaauuugca 4500

ggggauacug aaaaauacgg cagguggccu aaggcugcug uaaaguugag gggagaggaa 4560

aucuuaagau uacaagauaa aaaacgaauc cccuaaacaa aaagaacaau agaacugguc 4620

uuccauuuug ccaccuuucc uguucaugac agcuacuaac cuggagacag uaacauuuca 4680

uuaaccaaag aaagtggguc accugaccuc ugaagagcug aguacucagg ccacuccaau 4740

cacccuacaa gaugccaagg aggucccagg aaguccagcu ccuuaaacug acgcuaguca 4800

auaaaccugg gcaagugagg caagagaaau gaggaagaau ccaucuguga ggugacaggc 4860

aaggaugaaa gacaaagaag gaaaagagua ucaaaggcag aaaggagauc auuuaguugg 4920

gucugaaagg aaaagucuuu gcuauccgac auguacugcu aguaccugua agcauuuuag 4980

gucccagaau ggaaaaaaaa aucagcuauu gguaauauaa uaauguccuu ucccuggagu 5040

caguuuuuuu aaaaaguuaa cucuuaguuu uuacuuguuu aauucuaaaa gagaagggag 5100

cugaggccau ucccuguagg aguaaagaua aaaggauagg aaaagauuca aagcucuaau 5160

agagucacag cuuucccagg uauaaaaccu aaaauuaaga aguacaauaa gcagaggugg 5220

aaaaugaucu aguuccugau agcuacccac agagcaagug auuuauaaau uugaaaucca 5280

aacuacuuuc uuaauaucac uuuggucucc auuuuuccca ggacaggaaa uaugucccc 5340

ccuaacuuuc uugcuucaaa aauuaaaauc cagcauccca agaucauucu acaaguaauu 5400

uugcacagac aucuccucac cccagugccu gucuggagcu cacccaaggu caccaaacaa 5460

cuugguugug aaccaacugc cuuaaccuuc ugggggaggg ggauuagcua gacuaggaga 5520

ccagaaguga augggaaagg gugaggacuu cacaauguug gccugucaga gcuugauuag 5580

aagccaagac aguggcagca aaggaagacu uggcccagga aaaaccugug gguugugcua 5640

auuucugucc agaaaauagg guggacagaa gcuuguggg uacauggagg aauugggacc 5700

ugguuauguu guuauucucg gacugugaau uuuggugaug uaaaacagaa uauucuguaa 5760

accuaauguc uguauaaaua augagcguua acacaguaaa auauucaaua agaagucaaa 5820

cuacuagggu ua 5832

<210> 19
<211> 5757
<212> RNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(5757)
<223> LOCUS BACE 5757 bp mRNA linear P
RI 05-NOV-2002
DEFINITION Homo sapiens beta-site APP-cleaving enzyme (BACE), tr
anscript
variant b, mRNA.
ACCESSION NM_138972; VERSION NM_138972.1 GI:21040365

<300>
<308> NM_138972
<309> 2002-11-05
<313> (1)..(5757)

<400> 19
uccccagccc gcccgggagc ugcgagccgc gagcuggauu augguggccu gagcagccaa 60

cgcagccgca ggagcccgga gcccuugccc cugcccgcgc cgccgcccgc cgggggacc 120

agggaagccg ccaccggccc gccaugcccg ccccucccag ccccgccggg agcccgcgcc 180

cgcugcccag gcuggccgcc gccgugccga uguagcgggc uccggauccc agccucuccc 240

cugcucccgu gcucugcgga ucucccccuga ccgcucucca cagcccggac ccgggggcug 300

gcccagggcc cugcaggccc uggcguccug augcccccaa gcucccucuc cugagaagcc 360
accagcacca cccagacuug ggggcaggcg ccagggacgg acgugggcca gugcgagccc 420
agagggcccg aaggccgggg cccaccaugg cccaagcccu gcccuggcuc cugcugugga 480
ugggcgcggg agugcugccu gcccacggca cccagcacgg cauccggcug ccccugcgca 540
gcggccuggg gggcgccccc cuggggcugc ggcugccccg ggagaccgac gaagagcccg 600
aggagcccgg ccggaggggc agcuuugugg agauggugga caaccugagg ggcaagucgg 660
ggcagggcua cuacguggag augaccgugg gcagcccccc gcagacgcuc aacauccugg 720
uggauacagg cagcaguaac uuugcagugg gugcugcccc ccacccccuc cugcaucgcu 780
acuaccagag gcagcugucc agcacauacc gggaccuccg gaagggugug uaugugcccu 840
acacccaggg caagugggaa ggggagcugg gcaccgaccu gguaagcauc ccccauggcc 900
ccaacgucac ugugcgugcc aacauugcug ccaucacuga aucagacaag uucuucauca 960
acggcuccaa cugggaaggc auccuggggc uggccuaugc ugagauugcc aggcuuugug 1020
gugcuggcuu ccccccucaac cagucugaag ugcuggccuc ugucggaggg agcaugauca 1080
uuggagguau cgaccacucg cuguacacag gcagucucug guauacaccc auccggcggg 1140
agugguauua ugaggucauc auugugcggg uggagaucaa uggacaggau cugaaaaugg 1200
acugcaagga guacaacuau gacaagagca uuguggacag uggcaccacc aaccuucguu 1260
ugcccaagaa aguguuugaa gcugcaguca aauccaucaa ggcagccucc uccacggaga 1320
aguucccuga ugguuucugg cuaggagagc agcuggugug cuggcaagca ggcaccaccc 1380
cuuggaacau uuucccaguc aucucacucu accuaauggg ugagguuacc aaccaguccu 1440
uccgcaucac cauccuuccg cagcaauacc ugcggccagu ggaagaugug gccacguccc 1500
aagacgacug uuacaaguuu gccaucucac agucauccac gggcacuguu augggagcug 1560
uuaucaugga gggcuucuac guugucuuug aucgggcccg aaaacgaauu ggcuuugcug 1620
ucagcgcuug ccaugugcac gaugaguuca ggacggcagc gguggaaggc ccuuuuguca 1680
ccuuggacau ggaagacugu ggcuacaaca uuccacagac agaugaguca acccucauga 1740
ccauagccua ugucauggcu gccaucugcg cccucuucau gcugccacuc ugccucaugg 1800
ugugucagug gcgcugccuc cgcugccugc gccagcagca ugaugacuuu gcugaugaca 1860
ucucccugcu gaagugagga ggcccauggg cagaagauag agauuccccu ggaccacacc 1920
uccgugguuc acuuugguca caaguaggag acacagaugg caccuguggc cagagcaccu 1980
caggacccuc cccacccacc aaaugccucu gccuugaugg agaaggaaaa ggcuggcaag 2040
guggguucca gggacuguac cuguaggaaa cagaaaagag aagaaagaag cacucugcug 2100
gcgggaauac ucuuggucac cucaaauuua agucgggaaa uucugcugcu ugaaacuuca 2160
gcccugaacc uuuguccacc auuccuuuaa auucuccaac ccaaaguauu cuucuuuucu 2220
uaguuucaga aguacuggca ucacacgcag guuaccuugg cguguguccc ugugguaccc 2280

uggcagagaa gagaccaagc uuguuucccu gcuggccaaa gucaguagga gaggaugcac 2340

aguuugcuau uugcuuuaga gacagggacu guauaaacaa gccuaacauu ggugcaaaga 2400

uugccucuug aauuaaaaaa aaaaacuaga uugacuauuu auacaaaugg gggcggcugg 2460

aaagaggaga aggagaggga guacaaagac agggaauagu gggaucaaag cuaggaaagg 2520

cagaaacaca accacucacc aguccuaguu uuagaccuca ucuccaagau agcaucccau 2580

cucagaagau ggguguuguu uucaauguuu ucuuuucugu gguugcagcc ugaccaaaag 2640

ugagauggga agggcuuauc uagccaaaga gcucuuuuuu agcucucuua aaugaagugc 2700

ccacuaagaa guuccacuua acacaugaau uucugccaua uuaauuucau ugucucuauc 2760

ugaaccaccc uuuauucuac auaugauagg cagcacugaa auauccuaac ccccuaagcu 2820

ccaggugccc ugugggagag caacuggacu auagcagggc ugggcucugu cuuccugguc 2880

auaggcucac ucuuuccccc aaaucuuccu cuggagcuuu gcagccaagg ugcuaaaagg 2940

aauagguagg agaccucuuc uaucuaaucc uuaaaagcau aauguugaac auucauucaa 3000

cagcugaugc ccuauaaccc cugccuggau uucuuccuau uaggcuauaa gaaguagcaa 3060

gaucuuuaca uaauucagag ugguuucacu gccuuccuac ccucucuaau ggccccucca 3120

uuuauuugac uaaagcauca cacaguggca cuagcauuau accaagagua ugagaaauac 3180

agugcuuuau ggcucuaaca uuacugccuu caguaucaag gcugccugga gaaaggaugg 3240

cagccucagg gcuuccuuau guccuccacc acaagagcuc cuugaugaag gucaucuuuu 3300

uccccuaucc uguucuuccc cucccccgcuc cuaaugguac gugggguaccc aggcugguuc 3360

uugggcuagg uaguggggac caaguucauu accucccuau caguucuagc auaguaaacu 3420

acgguaccag uguuaguggg aagagcuggg uuuuccuagu auacccacug cauccuacuc 3480

cuaccugguc aacccgcugc uuccagguau gggaccugcu aaguguggaa uuaccugaua 3540

agggagaggg aaauacaagg agggccucug guguuccugg ccucagccag cugcccacaa 3600

gccauaaacc aauaaaacaa gaauacugag ucaguuuuuu aucuggguuc ucuucauucc 3660

cacugcacuu ggugcugcuu uggcugacug ggaacacccc auaacuacag agucugacag 3720

gaagacugga gacuguccac uucuagcucg gaacuuacug uguaaauaaa cuuucagaac 3780

ugcuaccaug aagugaaaau gccacauuuu gcuuuauaau uucuacccau guugggaaaa 3840

acuggcuuuu ucccagcccu uuccagggca uaaaacucaa ccccuucgau agcaaguccc 3900

aucagccuau uauuuuuuua aagaaaacuu gcacuuguuu uucuuuuuac aguuacuucc 3960

uuccugcccc aaaauuauaa acucuaagug uaaaaaaaag ucuuaacaac agcuucuugc 4020

uuguaaaaau auguauuaua caucuguauu uuuaaauucu gcuccugaaa aaugacuguc 4080

ccauucucca cucacugcau uuggggccuu ucccauuggu cugcaugucu uuuaucauug 4140

caggccagug gacagaggga gaagggagaa caggggucgc caacacuugu guugcuuucu 4200

gacugauccu gaacaagaaa gaguaacacu gaggcgcucg cucccaugca caacucucca 4260

aaacacuuau ccuccugcaa gagugggcuu uccagggucu uuacugggaa gcaguuaagc 4320

p11089.ST25.txt

ccccuccuca ccccuuccuu uuuucuuucu uuacuccuuu ggcuucaaag gauuuuggaa 4380
aagaaacaau augcuuuaca cucauuuuca auuucuaaau uugcagggga uacugaaaaa 4440
uacggcaggu ggccuaaggc ugcuguaaag uugaggggag aggaaaucuu aagauuacaa 4500
gauaaaaaac gaaucccccua aacaaaaaga acaauagaac uggucuucca uuuugccacc 4560
uuuccuguuc augacagcua cuaaccugga gacaguaaca uuucauuaac caaagaaagu 4620
gggucaccug accucugaag agcugaguac ucaggccacu ccaaucaccc uacaagaugc 4680
caaggagguc ccaggaaguc cagcuccuua aacugacgcu agucaauaaa ccugggcaag 4740
ugaggcaaga gaaaugagga agaauccauc ugugagguga caggcaagga ugaaagacaa 4800
agaaggaaaa gaguaucaaa ggcagaaagg agaucauuua guuggggucug aaaggaaaag 4860
ucuuugcuau ccgacaugua cugcuaguac cuguaagcau uuuaggcccc agaauggaaa 4920
aaaaaaucag cuauugguaa uauaauaaug uccuuucccu ggagucaguu uuuuuaaaaa 4980
guuaacucuu aguuuuuuacu uguuuuaauuc uaaaagagaa gggagcugag gccauucccu 5040
guaggaguaa agauaaaagg auaggaaaag auucaaagcu cuaauagagu cacagcuuuc 5100
ccagguauaa aaccuaaaau uaagaaguac aauaagcaga gguggaaaau gaucuaguuc 5160
cugauagcua cccacagagc aagugauuua uaaauuugaa auccaaacua cuuucuuaau 5220
aucacuuugg ucuccauuuu ucccaggaca ggaaauaugu ccccccccuaa cuuucuugcu 5280
ucaaaaauua aaauccagca ucccaagauc auucuacaag uaauuuugca cagacaucuc 5340
cucaccccag ugccugucug gagcucaccc aaggucacca aacaacuugg uugugaacca 5400
acugccuuaa ccuucugggg gaggggauu agcuagacua ggagaccaga agugaauggg 5460
aaagggugag gacuucacaa uguuggccug ucagagcuug auuagaagcc aagacagugg 5520
cagcaaagga agacuuggcc caggaaaaac cugugggguug ugcuaauuuc uguccagaaa 5580
auagggugga cagaagcuug ugggguacau ggaggaauug ggaccugguu auguuguuau 5640
ucucggacug ugaauuuugg ugauguaaaa cagaauauuc uguaaaccua augucuguau 5700
aaauaaugag cguuaacaca guaaaauauu caauaagaag ucaaacuacu aggguua 5757

<210> 20
<211> 5700
<212> RNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(5700)
<223> LOCUS BACE 5700 bp mRNA linear P
RI 21-MAY-2002
DEFINITION Homo sapiens beta-site APP-cleaving enzyme (BACE), tr
anscript
variant c, mRNA.
ACCESSION NM_138971; VERSION NM_138971.1 GI:21040363

<300>

<308> NM_138971.1
<309> 2002-05-21
<313> (1)..(5700)

<400> 20
uccccagccc gcccgggagc ugcgagccgc gagcuggauu augguggccu gagcagccaa 60

cgcagccgca ggagcccgga gcccuugccc cugcccgcgc cgccgcccgc cgggggacc 120

agggaagccg ccaccggccc gccaugcccg ccccucccag ccccgccggg agcccgcgcc 180

cgcugcccag gcuggccgcc gccgugccga uguagcgggc uccggauccc agccucuccc 240

cugcucccgu gcucugcgga ucucccccuga ccgcucucca cagcccggac ccgggggcug 300

gcccagggcc cugcaggccc uggcguccug augcccccaa gcucccucuc cugagaagcc 360

accagcacca cccagacuug ggggcaggcg ccagggacgg acgugggcca gugcgagccc 420

agagggcccg aaggccgggg cccaccaugg cccaagcccu gcccuggcuc cugcugugga 480

ugggcgcggg agugcugccu gcccacggca cccagcacgg cauccggcug ccccugcgca 540

gcggccuggg gggcgccccc cuggggcugc ggcugccccg ggagaccgac gaagagcccg 600

aggagcccgg ccggaggggc agcuuugugg agauggugga caaccugagg ggcaagucgg 660

ggcagggcua cuacguggag augaccgugg gcagcccccc gcagacgcuc aacauccugg 720

uggauacagg cagcaguaac uuugcagugg gugcugcccc ccacccccuuc cugcaucgcu 780

acuaccagag gcagcugucc agcacauacc gggaccuccg gaagggugug uaugugcccu 840

acacccaggg caagugggaa ggggagcugg gcaccgaccu gccugacgac ucccuggagc 900

cuuucuuuga cucucuggua aagcagaccc acguucccaa ccucuucucc cugcagcuuu 960

guggugcugg cuucccccuc aaccagucug aagugcuggc cucugucgga gggagcauga 1020

ucauuggagg uaucgaccac ucgcuguaca caggcagucu cugguauaca cccauccggc 1080

gggaguggua uuaugagguc aucauugugc ggguggagau caauggacag gaucugaaaa 1140

uggacugcaa ggaguacaac uaugacaaga gcauugugga caguggcacc accaaccuuc 1200

guuugcccaa gaaaguguuu gaagcugcag ucaaauccau caaggcagcc uccuccacgg 1260

agaaguuccc ugaugguuuc uggcuaggag agcagcuggu gugcuggcaa gcaggcacca 1320

ccccuuggaa cauuuuccca gucaucucac ucuaccuaau gggugagguu accaaccagu 1380

ccuuccgcau caccauccuu ccgcagcaau accugcggcc aguggaagau guggccacgu 1440

cccaagacga cuguuacaag uuugccaucu cacagucauc cacgggcacu guuaugggag 1500

cuguuaucau ggagggcuuc uacguugucu uugaucgggc ccgaaaacga auuggcuuug 1560

cugucagcgc uugccaugug cacgaugagu ucaggacggc agcgguggaa ggcccuuuug 1620

ucaccuugga cauggaagac uguggcuaca acauuccaca gacagaugag ucaacccuca 1680

ugaccauagc cuaugucaug gcugccaucu gcgcccucuu caugcugcca cucugccuca 1740

uggugugguca guggcgcugc cuccgcugcc ugcgccagca gcaugaugac uuugcugaug 1800

acaucucccu gcugaaguga ggaggcccau gggcagaaga uagagauucc ccuggaccac 1860

accuccgugg uucacuuugg ucacaaguag gagacacaga uggcaccugu ggccagagca 1920

ccucaggacc cucccccaccc accaaaugcc ucugccuuga uggagaagga aaaggcuggc 1980

aaggugggguu ccagggacug uaccuguagg aaacagaaaa gagaagaaag aagcacucug 2040

cuggcgggaa uacucuuggu caccucaaau uuaagucggg aaauucugcu gcuugaaacu 2100

ucagcccuga accuuugucc accauuccuu uaaauucucc aacccaaagu auucuucuuu 2160

ucuuaguuuc agaaguacug gcaucacacg cagguuaccu uggcgugugu cccuguggua 2220

cccuggcaga gaagagacca agcuuguuuc ccugcuggcc aaagucagua ggagaggaug 2280

cacaguuugc uauuugcuuu agagacaggg acuguauaaa caagccuaac auuggugcaa 2340

agauugccuc uugaauuaaa aaaaaaaacu agauugacua uuuauacaaa ugggggcggc 2400

uggaaagagg agaaggagag ggaguacaaa gacagggaau agugggauca aagcuaggaa 2460

aggcagaaac acaaccacuc accaguccua guuuuagacc ucaucuccaa gauagcaucc 2520

caucucagaa gauggguguu guuuucaaug uuuucuuuuc ugugguugca gccugaccaa 2580

aagugagaug ggaagggcuu aucuagccaa agagcucuuu uuuagcucuc uuaaaugaag 2640

ugcccacuaa gaaguuccac uuaacacaug aauuucugcc auauuaauuu cauugucucu 2700

aucugaacca cccuuuauuc uacauaugau aggcagcacu gaaauauccu aacccccuaa 2760

gcuccaggug cccuguggga gagcaacugg acuauagcag ggcugggcuc ugucuuccug 2820

gucauaggcu cacucuuucc cccaaaucuu ccucuggagc uuugcagcca aggugcuaaa 2880

aggaauaggu aggagaccuc uucuaucuaa uccuuaaaag cauaauguug aacauucauu 2940

caacagcuga ugcccuauaa ccccugccug gauuucuucc uauuaggcua uaagaaguag 3000

caagaucuuu acauaauuca gagugguuuc acugccuucc uacccucucu aauggccccu 3060

ccauuuauuu gacuaaagca ucacacagug gcacuagcau uauaccaaga guaugagaaa 3120

uacagugcuu uauggcucua acauuacugc cuucaguauc aaggcugccu ggagaaagga 3180

uggcagccuc agggcuuccu uauguccucc accacaagag cuccuugaug aaggucaucu 3240

uuuuccccua uccuguucuu ccccucccccg cuccuaaugg uacgugggua cccaggcugg 3300

uucuugggcu agguaguggg gaccaaguuc auuaccuccc uaucaguucu agcauaguaa 3360

acuacgguac caguguuagu gggaagagcu gggguuuuccu aguauaccca cugcauccua 3420

cuccuaccug gucaacccgc ugcuuccagg uaugggaccu gcuaagugug gaauuaccug 3480

auaagggaga gggaaauaca aggagggccu cugguguucc uggccucagc cagcugccca 3540

caagccauaa accaauaaaa caagaauacu gagucaguuu uuuaucuggg uucucuucau 3600

ucccacugca cuuggugcug cuuuggcuga cugggaacac cccauaacua cagagucuga 3660

caggaagacu ggagacuguc cacuucuagc ucggaacuua cuguguaaau aaacuuucag 3720

aacugcuacc augaagugaa aaugccacau uuugcuuuau aauuucuacc cauguuggga 3780

aaaacuggcu uuuucccagc ccuuuccagg gcauaaaacu caaccccuuc gauagcaagu 3840

cccaucagcc uauuauuuuu uuaaagaaaa cuugcacuug uuuuucuuuu uacaguuacu 3900

uccuuccugc cccaaaauua uaaacucuaa guguaaaaaa aagucuuaac aacagcuucu 3960
ugcuuguaaa aauauguauu auacaucugu auuuuuaaau ucugcuccug aaaaaugacu 4020
gucccauucu ccacucacug cauuuggggc cuuucccauu ggucugcaug ucuuuuauca 4080
uugcaggcca guggacagag ggagaaggga gaacaggggu cgccaacacu uguguugcuu 4140
ucugacugau ccugaacaag aaagaguaac acugaggcgc ucgcucccau gcacaacucu 4200
ccaaaacacu uauccuccug caagaguggg cuuuccaggg ucuuuacugg gaagcaguua 4260
agcccccucc ucaccccuuc cuuuuuucuu ucuuuacucc uuuggcuuca aaggauuuug 4320
gaaaagaaac aauaugcuuu acacucauuu ucaauuucua aauuugcagg ggauacugaa 4380
aaauacggca gguggccuaa ggcugcugua aaguugaggg gagaggaaau cuuaagauua 4440
caagauaaaa aacgaauccc cuaaacaaaa agaacaauag aacuggucuu ccauuuugcc 4500
accuuuccug uucaugacag cuacuaaccu ggagacagua acauuucauu aaccaaagaa 4560
agugggucac cugaccucug aagagcugag uacucaggcc acuccaauca cccuacaaga 4620
ugccaaggag gucccaggaa guccagcucc uuaaacugac gcuagucaau aaaccugggc 4680
aagugaggca agagaaauga ggaagaaucc aucugugagg ugacaggcaa ggaugaaaga 4740
caaagaagga aaagaguauc aaaggcagaa aggagaucau uuaguuggguu cugaaaggaa 4800
aagucuuugc uauccgacau guacugcuag uaccuguaag cauuuuaggu cccagaaugg 4860
aaaaaaaaau cagcuauugg uaauauaaua auguccuuuc ccuggaguca guuuuuuuaa 4920
aaaguuaacu cuuaguuuuu acuuguuuaa uucuaaaaga gaagggagcu gaggccauuc 4980
ccuguaggag uaaagauaaa aggauaggaa aagauucaaa gcucuaauag agucacagcu 5040
uucccaggua uaaaaccuaa aauuaagaag uacaauaagc agagguggaa aaugaucuag 5100
uuccugauag cuacccacag agcaagugau uuauaaauuu gaaauccaaa cuacuuucuu 5160
aauaucacuu uggucuccau uuuucccagg acaggaaaua ugucccccc uaacuuucuu 5220
gcuucaaaaa uuaaaaucca gcaucccaag aucauucuac aaguaauuuu gcacagacau 5280
cuccucaccc cagugccugu cuggagcuca cccaagguca ccaaacaacu ugguugugaa 5340
ccaacugccu uaaccuucug ggggaggggg auuagcuaga cuaggagacc agaagugaau 5400
gggaaagggu gaggacuuca caauguuggc cugucagagc uugauuagaa gccaagacag 5460
uggcagcaaa ggaagacuug gcccaggaaa aaccuguggg uugugcuaau uucuguccag 5520
aaaauagggu ggacagaagc uuugguggggua cauggaggaa uugggaccug guuauguugu 5580
uauucucgga cugugaauuu uggugaugua aaacagaaua uucuguaaac cuaaugucug 5640
uauaaauaau gagcguuaac acaguaaaau auucaauaag aagucaaacu acuaggguua 5700

<210> 21
<211> 5625
<212> RNA
<213> Homo sapiens

p11089.ST25.txt

<220>
<221> misc_feature
<222> (1)..(5625)
<223> LOCUS BACE 5625 bp mRNA linear P
RI 05-NOV-2002
DEFINITION Homo sapiens beta-site APP-cleaving enzyme (BACE), tr
anscript
variant d, mRNA.
ACCESSION NM_138973; VERSION NM_138973.1 GI:21040367

<300>
<308> NM_138973
<309> 2002-11-05
<313> (1)..(5625)

<400> 21
uccccagccc gcccgggagc ugcgagccgc gagcuggauu augguggccu gagcagccaa 60
cgcagccgca ggagcccgga gcccuugccc cugcccgcgc cgccgcccgc cgggggacc 120
agggaagccg ccaccggccc gccaugcccg ccccucccag ccccgccggg agcccgcgcc 180
cgcugcccag gcuggccgcc gccgugccga uguagcgggc uccggauccc agccucuccc 240
cugcucccgu gcucugcgga ucuccccuga ccgcucucca cagcccggac ccgggggcug 300
gcccagggcc cugcaggccc uggcguccug augccccaa gcucccucuc cugagaagcc 360
accagcacca cccagacuug ggggcaggcg ccagggacgg acgugggcca gugcgagccc 420
agagggcccg aaggccgggg cccaccaugg cccaagcccu gcccuggcuc cugcugugga 480
ugggcgcggg agugcugccu gcccacggca cccagcacgg cauccggcug ccccugcgca 540
gcggccuggg gggcgccccc cuggggcugc ggcugccccg ggagaccgac gaagagcccg 600
aggagcccgg ccggaggggc agcuuugugg agauggugga caaccugagg ggcaagucgg 660
ggcagggcua cuacguggag augaccgugg gcagcccccc gcagacgcuc aacauccugg 720
uggauacagg cagcaguaac uuugcagugg gugcugcccc ccacccccuuc cugcaucgcu 780
acuaccagag gcagcugucc agcacauacc gggaccuccg gaagggugug uaugugcccu 840
acacccaggg caagugggaa ggggagcugg gcaccgaccu gcuuuguggu gcuggcuucc 900
cccucaacca gucugaagug cuggccucug ucggagggag caugaucauu ggagguaucg 960
accacucgcu guacacaggc agucucuggu auacacccau ccggcgggag ugguauuaug 1020
aggucaucau ugugcgggug gagaucaaug gacaggaucu gaaaauggac ugcaaggagu 1080
acaacuauga caagagcauu guggacagug gcaccaccaa ccuucguuug cccaagaaag 1140
uguuugaagc ugcagucaaa uccaucaagg cagccuccuc cacggagaag uucccugaug 1200
guuucuggcu aggagagcag cuggugugcu ggcaagcagg caccaccccu uggaacauuu 1260
ucccagucau cucacucuac cuaaugggug agguuaccaa ccaguccuuc cgcaucacca 1320
uccuuccgca gcaauaccug cggccagugg aagauguggc cacgucccaa gacgacuguu 1380
acaaguuugc caucucacag ucauccacgg gcacuguuau gggagcuguu aucauggagg 1440
gcuucuacgu ugucuuugau cgggcccgaa aacgaauugg cuuugcuguc agcgcuugcc 1500

augugcacga ugaguucagg acggcagcgg uggaaggccc uuuugucacc uuggacaugg 1560

aagacugugg cuacaacauu ccacagacag augagucaac ccucaugacc auagccuaug 1620

ucauggcugc caucugcgcc cucuucaugc ugccacucug ccucauggug ugucaguggc 1680

gcugccuccg cugccugcgc cagcagcaug augacuuugc ugaugacauc ucccugcuga 1740

agugaggagg cccaugggca gaagauagag auuccccugg accacaccuc cgugguucac 1800

uuuggucaca aguaggagac acagauggca ccuguggcca gagcaccuca ggacccuccc 1860

cacccaccaa augccucugc cuugauggag aaggaaaagg cuggcaaggu ggguuccagg 1920

gacuguaccu guaggaaaca gaaaagagaa gaaagaagca cucugcuggc gggaauacuc 1980

uuggucaccu caaauuuaag ucgggaaauu cugcugcuug aaacuucagc ccugaaccuu 2040

uguccaccau uccuuuaaau ucuccaaccc aaaguauucu ucuuuucuua guuucagaag 2100

uacuggcauc acacgcaggu uaccuuggcg ugugucccug ugguacccug gcagagaaga 2160

gaccaagcuu guuucccugc uggccaaagu caguaggaga ggaugcacag uuugcuauuu 2220

gcuuuagaga cagggacugu auaaacaagc cuaacauugg ugcaaagauu gccucuugaa 2280

uuaaaaaaaa aaacuagauu gacuauuuau acaaaugggg gcggcuggaa agaggagaag 2340

gagagggagu acaaagacag ggaauagugg gaucaaagcu aggaaaggca gaaacacaac 2400

cacucaccag uccuaguuuu agaccucauc uccaagauag caucccaucu cagaagaugg 2460

guguuguuuu caauguuuuc uuuucugugg uugcagccug accaaaagug agaugggaag 2520

ggcuuaucua gccaaagagc ucuuuuuuag cucucuuaaa ugaagugccc acuaagaagu 2580

uccacuuaac acaugaauuu cugccauauu aauuucauug ucucuaucug aaccacccuu 2640

uauucuacau augauaggca gcacugaaau auccuaaccc ccuaagcucc aggugcccug 2700

ugggagagca acuggacuau agcagggcug ggcucugucu uccuggucau aggcucacuc 2760

uuuccccccaa aucuuccucu ggagcuuugc agccaaggug cuaaaaggaa uagguaggag 2820

accucuucua ucuaauccuu aaaagcauaa uguugaacau ucauucaaca gcugaugccc 2880

uauaaccccu gccuggauuu cuuccuauua ggcuauaaga aguagcaaga ucuuuacaua 2940

auucagagug guuucacugc cuuccuaccc ucucuaaugg ccccuccauu uauuugacua 3000

aagcaucaca caguggcacu agcauuauac caagaguaug agaaauacag ugcuuuaugg 3060

cucuaacauu acugccuuca guaucaaggc ugccuggaga aaggauggca gccucagggc 3120

uuccuuaugu ccuccaccac aagagcuccu ugaugaaggu caucuuuuuc cccuauccug 3180

uucuuccccu ccccgcuccu aaugguacgu ggguacccag gcugguucuu gggcuaggua 3240

gugggacca aguucauuac cucccuauca guucuagcau aguaaacuac gguaccagug 3300

uuagugggaa gagcuggguu uuccuaguau acccacugca uccuacuccu accuggucaa 3360

cccgcugcuu ccagguaugg gaccugcuaa guguggaauu accugauaag ggagagggaa 3420

auacaaggag ggccucuggu guuccuggcc ucagccagcu gcccacaagc cauaaaccaa 3480

uaaaacaaga auacugaguc aguuuuuuau cuggguucuc uucauuccca cugcacuugg 3540

ugcugcuuug gcugacuggg aacaccccau aacuacagag ucugacagga agacuggaga 3600
cuguccacuu cuagcucgga acuuacugug uaaauaaacu uucagaacug cuaccaugaa 3660
gugaaaaugc cacauuuugc uuuauaauuu cuacccaugu ugggaaaaac uggcuuuuuc 3720
ccagcccuuu ccagggcaua aaacucaacc ccuucgauag caagucccau cagccuauua 3780
uuuuuuuaaa gaaaacuugc acuuguuuuu cuuuuuacag uuacuuccuu ccugccccaa 3840
aauuauaaac ucuaagugua aaaaaaaguc uuaacaacag cuucuugcuu guaaaaauau 3900
guauuauaca ucuguauuuu uaaauucugc uccugaaaaa ugacuguccc auucuccacu 3960
cacugcauuu ggggccuuuc ccauuggucu gcaugucuuu uaucauugca ggccagugga 4020
cagagggaga agggagaaca ggggucgcca acacuugugu ugcuuucuga cugauccuga 4080
acaagaaaga guaacacuga ggcgcucgcu cccaugcaca acucuccaaa acacuuaucc 4140
uccugcaaga gugggcuuuc cagggucuuu acugggaagc aguuaagccc ccuccucacc 4200
ccuuccuuuu uucuuucuuu acuccuuugg cuucaaagga uuuuggaaaa gaaacaauau 4260
gcuuuacacu cauuuucaau uucuaaauuu gcaggggaua cugaaaaaua cggcaggugg 4320
ccuaaggcug cuguaaaguu gaggggagag gaaaucuuaa gauuacaaga uaaaaaacga 4380
aucccctaaa caaaaagaac aauagaacug gucuuccauu uugccaccuu uccuguucau 4440
gacagcuacu aaccuggaga caguaacauu ucauuaacca aagaaagugg gucaccugac 4500
cucugaagag cugaguacuc aggccacucc aaucacccua caagaugcca aggaggcccc 4560
aggaagucca gcuccuuaaa cugacgcuag ucaauaaacc ugggcaagug aggcaagaga 4620
aaugaggaag aauccaucug ugaggugaca ggcaaggaug aaagacaaag aaggaaaaga 4680
guaucaaagg cagaaaggag aucauuuagu ugggucugaa aggaaaaguc uuugcuaucc 4740
gacauguacu gcuaguaccu guaagcauuu uaggucccag aauggaaaaa aaaaucagcu 4800
auugguaaua uaauaauguc cuuucccugg agucaguuuu uuuaaaaagu uaacucuuag 4860
uuuuuacuug uuuaauucua aaagagaagg gagcugaggc cauucccugu aggaguaaag 4920
auaaaaggau aggaaaagau ucaaagcucu aauagaguca cagcuuuccc agguauaaaa 4980
ccuaaaauua agaaguacaa uaagcagagg uggaaaauga ucuaguuccu gauagcuacc 5040
cacagagcaa gugauuuaua aauuugaaau ccaaacuacu uucuuaauau cacuuugguc 5100
uccauuuuuc ccaggacagg aaauaugucc cccccuaacu uucuugcuuc aaaaauuaaa 5160
auccagcauc ccaagaucau ucuacaagua auuuugcaca gacaucuccu caccccagug 5220
ccugucugga gcucacccaa ggucaccaaa caacuugguu gugaaccaac ugccuuaacc 5280
uucuggggga gggggauuag cuagacuagg agaccagaag ugaaugggaa agggugagga 5340
cuucacaaug uuggccuguc agagcuugau uagaagccaa gacaguggca gcaaaggaag 5400
acuuggccca ggaaaaaccu guggguugug cuaauuucug uccagaaaau aggguggaca 5460
gaagcuugug ggguacaugg aggaauuggg accuggguau guuguuauuc ucggacugug 5520

aauuuuggug auguaaaaca gaauauucug uaaaccuaau gucuguauaa auaaugagcg 5580

uuaacacagu aaaauauuca auaagaaguc aaacuacuag gguua 5625

<210> 22
<211> 3880
<212> RNA
<213> Mus musculus

<220>
<221> misc_feature
<222> (1)..(3880)
<223> LOCUS Bace 3880 bp mRNA linear R
OD 07-JAN-2002
DEFINITION Mus musculus beta-site APP cleaving enzyme (Bace), mR
NA.
ACCESSION NM_011792; VERSION NM_011792.2 GI:6857758

<300>
<308> NM_011792
<309> 2002-01-07
<313> (1)..(3880)

<400> 22
ccccagccug ccuaggugcu gggagccggg agcuggauua ugguggccug agcagccgac 60

gcagccgcag gagcugggag ucccucacgc ugcaaagucc gccuggaaga cccugaaagc 120

ugcaggcucc gauagccaug cccgccccuc ccagccccac aaggggcccg aucccccccgc 180

ugaggcuggc ggucgccguc cagauuuagc ugggucccccc ggaucgccau cguccucuuc 240

ucucgugcgc uacagauuuc uccugcccac ucuccaccgc cgggagcagg aacugaucga 300

aggggccugc agacucugca guccugaugc ccccgaggcc gcucuccuga gagaagccac 360

caccacccag acuuaggggc aggcaagagg gacagucacc aaccggacca caaggcccgg 420

gcucacuaug gccccagcgc ugcacuggcu ccugcuaugg gugggcucgg gaaugcugcc 480

ugcccaggga acccaucucg gcauccggcu gccccuucgc agcggccugg cagggccacc 540

ccugggccug aggcugcccc gggagaccga cgaggaaucg gaggagccug gccggagagg 600

cagcuuugug gagauggugg acaaccugag gggaaagucc ggccagggcu acuaugugga 660

gaugaccgua ggcagccccc cacagacgcu caacauccug guggacacgg gcaguaguaa 720

cuuugcagug ggggcugccc cacacccuuu ccugcaucgc uacuaccaga ggcagcuguc 780

cagcacauau cgagaccucc gaaagggugu guaugugccc uacacccagg gcaaguggga 840

gggggaacug ggcaccgacc uggugagcau cccucauggc cccaacguca cugugcgugc 900

caacauugcu gccaucacug aaucggacaa guucuucauc aaugguucca acugggaggg 960

cauccuaggg cuggccuaug cugagauugc caggcccgac gacucuuugg agcccuucuu 1020

ugacucccug gugaagcaga cccacauucc caacaucuuu ucccugcagc ucuguggcgc 1080

uggcuucccc cucaaccaga ccgaggcacu ggccucggug ggagggagca ugaucauugg 1140

ugguaucgac cacucgcuau acacgggcag ucucugguac acacccaucc ggcgggagug 1200

guauuaugaa gugaucauug uacgugugga aaucaauggu caagaucuca agauggacug 1260

caaggaguac aacuacgaca agagcauugu ggacaguggg accaccaacc uucgcuugcc 1320
caagaaagua uuugaagcug ccgucaaguc caucaaggca gccuccucga cggagaaguu 1380
cccggauggc uuuuggcuag gggagcagcu ggugugcugg caagcaggca cgaccccuug 1440
gaacauuuuc ccagucauuu cacuuuaccu caugggugaa gucaccaauc aguccuuccg 1500
caucaccauc cuuccucagc aauaccuacg gccgguggag gacguggcca cgucccaaga 1560
cgacuguuac aaguucgcug ucucacaguc auccacgggc acuguuaugg gagccgucau 1620
cauggaaggu uucuaugucg ucuucgaucg agcccgaaag cgaauuggcu uugcugucag 1680
cgcuugccau gugcacgaug aguucaggac ggcggcagug gaagguccgu uuguuacggc 1740
agacauggaa gacuguggcu acaacauucc ccagacagau gagucaacac uuaugaccau 1800
agccuauguc auggcggcca ucugcgcccu cuucauguug ccacucugcc ucaugguaug 1860
ucaguggcgc ugccugcguu gccugcgcca ccagcacgau gacuuugcug augacaucuc 1920
ccugcucaag uaaggaggcc cgugggcaga ugauggagac gccccuggac cacaucuggg 1980
ugguucccuu uggucacaug aguuggagcu auggauggua ccuguggcca gagcaccuca 2040
ggacccucac caaccugcca augcuucugg cgugacagaa cagagaaauc aggcaagcug 2100
gauuacaggg cuugcaccug uaggacacag gagagggaag gaagcagcgu ucugguggca 2160
ggaauauccu uagacaccac aaacuugagu uggaaauuuu gcugcuugaa gcuucagccc 2220
ugacccucug cccagcaucc uuuagagucu ccaaccucga guauucuuuc uguccuucca 2280
gaaguacugg ugucauacuc aggcuacccg gcaugugucc cugugguacc cuggcagaga 2340
aagggccaau cuucauuucc ccugcuggcc aaagucagca gaagaaagug aaguuugcca 2400
guugcuuuag ugauagggac uugcagacuc aagccuacac ugguacaaag acugcgucuu 2460
gagauaaaca agaaccuaug cgaugcgaau guuuauacuc cugggggcag ucaagaugag 2520
gagacaggau aggauagaga caggaaggag augguagcaa aacugggaaa ggcagaacuc 2580
ugaucacuuu cuaguuccaa guuuagacuc aucuccaaga cagaagccca ucuggacuaa 2640
gagguaucau uccccaaugu gccugugguu guagucugaa cugaaaugaa auggggggaaa 2700
aagggcuuau uagccaaaga gcucuuuuua acacucuuag aggaacagug cucaugagaa 2760
aagucccacu ggacagauga auuccuaucu uguuaauucu gucucucucu gcuucuucaa 2820
caugcuaagu ggcaccaaaa ugacccaacc ccaaggucuu aggugcccua ugggacaaca 2880
guuagaauau uguagggcua gggauggucu ucccagcaua gguucacucc aaccaaggug 2940
cuaaaaggaa cagacaggag aaguccuccu cucugaucca caaaggcaga gcccucaaga 3000
uucauccagc caggguuagg gcugaugcau uugccucugc cuggauuuug uuuuuauuuu 3060
cuuucuuuuu gcccaagugg guacaaaacg auaagcucuu uauggaauac ugagugggguu 3120
cauuccucuc uugcccucuc caauggcccc ucuauuuauc uggcuaagga aacaccacgc 3180
auuggcuagu auuaaacagc aacuguaaga uagagggcuu ucuguucuau gucauugccu 3240

ucaguaucaa ggcugccugg agaaaggaug gcagccucag ggcuuccuua cuuucuucuc 3300

cuuuccugac agagcagccu uucuguccug cucucugcug ccccucccaa uauaauccau 3360

ggguacccag gcugguucuu gggcuagguu gugggggcca cacucaccuc uucccugcca 3420

guucuaacac gacagacaug aagccagugu uagugggaag agcuggguuu ucccaggaug 3480

accacugcau ccucuccugg uacgcucuac acugcuuuca ggcuggggac cugccaagug 3540

ugggacaguu gaugaggaag agacauuagc agggccucug gaguugcugg cccagccagc 3600

ugcccacaag ccauaaacca auaaaauaag aauccugcgu cacaguuucc agcugggucc 3660

ucuuccuugc ccucgcacug gugcugcucu ggcugaguag gaauacaccc acagacugcc 3720

aggaagaugg agacuguccg cuuccggcuc agaacuacag uguaauuaag cuuccaggau 3780

cacuaccaug aaaacgccgc auucugcuuu aucauuucua cccauguugg gaaaaacugg 3840

cuuuuucccc auuucuuuac agggcaaaaa aaaaaaaaaa 3880

<210> 23
<211> 1096
<212> RNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)..(1096)
<223> LOCUS SNCA 1096 bp mRNA linear P
RI 05-NOV-2002
DEFINITION Homo sapiens synuclein, alpha (non A4 component of am
yloid
precursor) (SNCA), transcript variant NACP112, mRNA.
ACCESSION NM_007308: VERSION NM_007308.1 GI:6806897

<300>
<308> NM_007308
<309> 2002-12-05
<313> (1)..(1096)

<400> 23
gaauucauua gccauggaug uauucaugaa aggacuuuca aaggccaagg agggaguugu 60

ggcugcugcu gagaaaacca aacagggugu ggcagaagca gcaggaaaga caaaagaggg 120

uguucucuau guaggcucca aaaccaagga gggaguggug caugguguugg caacaguggc 180

ugagaagacc aaagagcaag ugacaaaugu uggaggagca guggugacgg gugugacagc 240

aguagcccag aagacagugg agggagcagg gagcauugca gcagccacug gcuuugucaa 300

aaaggaccag uugggcaagg aaggguauca agacuacgaa ccugaagccu aagaaauauc 360

uuugcuccca guuucuugag aucugcugac agauguucca uccuguacaa gugcucaguu 420

ccaaugugcc cagucaugac auuucucaaa guuuuuacag uguaucucga agucuuccau 480

cagcagugau ugaaguaucu guaccugccc ccacucagca uuucggugcu ucccuuucac 540

ugaagugaau acaugguagc agggucuuug ugugcugugg auuuuguggc uucaaucuac 600

gauguuaaaa caaauuaaaa acaccuaagu gacuaccacu uauuucuaaa uccucacuau 660

uuuuuuguug cuguuguuca gaaguuguua gugauuugcu aucauauauu auaagauuuu 720

uaggugucuu uuaaugauac ugucuaagaa uaaugacgua uugugaaauu uguuaauaua 780

uauaauacuu aaaaauaugu gagcaugaaa cuaugcaccu auaaauacua aauaugaaau 840

uuuaccauuu ugcgaugugu uuuauucacu uguguuugua uauaaauggu gagaauuaaa 900

auaaaacguu aucucauugc aaaaauauuu uauuuuuauc ccaucucacu uuaauaauaa 960

aaaucaugcu uauaagcaac augaauuaag aacugacaca aaggacaaaa auauaaaguu 1020

auuaauagcc auuugaagaa ggaggaauuu uagaagaggu agagaaaaug gaacauuaac 1080

ccuacacucg gaauuc 1096